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REPORT AND COMMENTS ON THE EYEBALL INJURIES BY IRON FOREIGN BODIES AT THE NEW YORK OPHTHALMIC AND AURAL INSTITUTE, NEW YORK CITY.

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(*Continued from Vol. xxxv., No. 1, p. 14.*)

B.—FOREIGN BODIES NOT SEEN THROUGH THE OPHTHALMOSCOPE, BUT EXTRACTED FROM BEHIND THE LENS.

CASE 14. **Piece of steel entered through cornea and iris, beginning cataract, extracted by Haab's magnet, 21 days afterward. New corneal section. Recovery, eye saved, sight diminished.**

Charles S. Davis, æt. thirty-two, Zylonite, Mass.; while hammering chisel March 16, 1899, a piece of steel entered right eye, sight diminished immediately, eye became red. Admitted April 5, 1899. No pain previous to 18 days ago. Small vertical scar of temporal side of cornea near limbus, opening in the iris correspondingly, circumcorneal congestion, iris not swollen, pupil dilated, incipient cataract. Light-projection good, defective above. Operation with Haab's magnet. The first three attempts failed to elicit evidence of the presence of a foreign body. Upon fourth attempt patient felt distinct twinge of pain. When tip of the magnet approached the lower segment of cornea, a bulging at lower portion of iris was noticed immediately. Section of cornea at junction of middle with lower third. Haab's magnet readily drew the foreign body to the surface and extracted it.

Piece of steel 3 x 1*mm* in size and having two sharp points. A week later pupil dilated, but small anterior adhesion persisted, irritation subsided, cataract increasing, field as before. Left April 16th.

Case 15. **Piece of steel entered vitreous through cornea, iris, and lens. Extracted 107 days later through a new scleral incision. Cataract. Can count fingers.**

George Laidley, æt. thirty-three, Shelburne Falls, Mass. December 26, 1898, piece of steel entered right eye, while he was striking two hammers together. Sight blurred immediately, no pain. Admitted April 12, 1899. Scar at junction of upper and middle third of cornea, scar of capsule of lens at a little below corneal scar. No fundus reflex. Light-projection defective above and to inner side. Pain felt when tip of Haab's magnet was brought near lower portion of cornea, no bulging of iris.

Operation the next day: after several unsuccessful attempts to lead the foreign body around the lens into the posterior chamber as usual, tip of magnet brought into contact with lower part of sclera. Foreign body located in floor of vitreous chamber in front of equator. Incision made into sclera between superior and external recti muscles. The incision proved to be a little to one side of the foreign body. When tip of magnet was brought into contact with wound and the latter was made to gape by slight pressure of finger, the foreign body suddenly appeared in the wound and then attached itself to magnet. Conjunctiva sutured over scleral wound, eye bandaged. Wedge-shaped piece of steel 3 x 2 x 1 *mm* in dimension. Normal recovery. When he was discharged, April 22d, the eye was free from irritation, scleral wound was healed. Tn. V = $\frac{8}{200}$. Light-perception good except in upper and inner portion.

Case 17. **Large piece of steel entered the vitreous through sclera. Magnet failed to extract during whole week. Scar reopened; both hand-magnet and Haab's failed. Another scleral incision made, piece drawn into it. Extracted with finger after unsuccessful attempt by forceps. Recovery. Light-perception.**

This case, being of special importance, will be reported in full:

James Ryan, æt. twenty, Hudson, N. Y. Admitted June 5, 1899; two days previously a piece of steel struck left eye. Moderate pain; sight diminished. Now marked circumcorneal injection and swelling. Scar surrounded by thickened episcleral tissue about 5*mm* external to upper and temporal borders of cornea. Pupil dilated by atropin; anterior chamber very deep, pupil clear, dim fundus-reflex, blood in vitreous. Trial to demonstrate presence of iron in eye was ineffective at first. During the following days the eye became clearer, swelling diminished, anterior chamber of normal depth. Large magnet failed to extract foreign body, but elicited pain when brought in contact with sclera downwards and somewhat in front of equator. Extraction was attempted every day during a whole week without result.

June 13th, when tried again, greatest pain was caused in region of scar at repeated attempts. Incision through scar proved a failure, both large and small magnet being unable to extract. When tip of large magnet was brought upward, above the wound, bulging and pain followed. Upper lid retracted with platinum-hook and patient directed to look down and inward as far as possible, incision made over most prominent point just external to superior end of vertical meridian and near equator. Large magnet readily attracted the piece of steel, but could not bring it any farther. Wound enlarged, forceps failed also to extract the foreign body. It was then grasped with the finger, while it remained under influence of the current and was extracted. The foreign body is a long, slender, and sickle-shaped piece 20*mm* long, 4*mm* wide, and 1*mm* thick; weight 23*cgr*. It is the largest known in literature.

Eye bandaged, patient placed in bed. A week after this extensive operation the eye showed no irritation and absolutely no trace of infection. The anterior chamber had become normal, pupil round and normal, circumcorneal infection entirely disappeared. Both wounds in sclera united promptly. June 22d, when patient left, eye was free from irritation, fundus illuminable everywhere, but no details discernible. Field defective below and nasal. V = light-perception. T—1.

Case 19. **Chip of steel entered vitreous through sclera. New scleral incision; small and Haab's magnets failed. Incision enlarged and foreign body extracted. Eye saved. No sight on account of hemorrhage into vitreous.**

Wellington Houck, aged twenty-four, Maineville, Pa. One week ago, chip of iron, coming from below and the right, struck left eye. Immediate loss of sight, severe pain and some bleeding. Admitted June 23, 1899. Wound in sclera about 4*mm* from cornea. Cornea, iris, pupil clear after dilatation by atropin. No fundus-reflex. Oblique illumination shows mass of blood lying on the floor of vitreous chamber. Pain felt near magnet. Operation June 24, 1899. Magnet elicited severe pain when merely brought in proximity to lower portion of eye, so that the foreign body could not be definitely located. Patient being nervous was given ether in sitting posture. Incision 3*mm* in length made back to ciliary body between internal and inferior recti muscles. Intended to draw away foreign body from ciliary body, where it was evidently engaged. Haab's magnet applied and small magnet introduced into wound produced no effect whatever. Wound enlarged diagonally into ciliary region, to an extent of 3*mm*. Foreign body extracted without further trouble. Recovery. Patient left July 17, 1899. Eye in good condition, no fundus-reflex. **V.** = 0. Chance for improvement of sight with absorption of hemorrhage in vitreous.

Case 23. **Piece of steel removed by Haab's magnet through scleral incision six weeks after injury. Magnet had been tried several times unsuccessfully one week after accident. Recovery.**

Harry Galambos, aged twelve, New York; while hammering a hatchet three weeks ago a spark flew into his eye. Six days afterwards and during the following days magnet had been tried unsuccessfully 5 or 6 times. Admitted November 15, 1899, and put under ether. New scleral incision made and Haab's magnet brought into close contact to it; foreign body extracted without difficulty. It was a wedge-shaped, thin piece of iron 3 x 2 x 1½*mm* in size. Scleral wound

closed by a single suture. A few days after the operation patient could count fingers and field was good but contracted in extreme nasal part. No statement made concerning lens and fundus. Good recovery. Eye not irritated when patient left on November 30, 1899.

Case 26. **Piece of steel entered vitreous through cornea near limbus 25 days ago. Irritation, synechiæ. Sideroscope gave evidence. Extracted by Haab's magnet through corneal incision. Recovery. V = $\frac{1}{200}$.**

Tom Watson, aged twenty, Albany, N. Y. Admitted April 7, 1902. Chip of iron had entered right eye through cornea on March 12, 1902. Moderate sclero-corneal congestion, pupil half dilated, posterior synechia below, anterior chamber normal. No ciliary tenderness. Tn. Fn. Can count fingers. Lens opaque. Sideroscope showed a slight deflection. When he was put near Haab's magnet pain was felt at the lower sclero-corneal junction, where the iris was made to bulge distinctly. Incision made at limbus *4mm* in extent. After several attempts iris was pushed forward and a piece of steel escaped, not injuring the iris. It was *½mm* broad and *5mm* long. A small piece of iris had to be removed from the wound the following day. When discharged April 13, 1902, anterior chamber was filled, wound healed, pupil excentric down, but well dilated. Fn. **V = $\frac{1}{200}$.**

Case 27. **Chip of iron in vitreous, removed through new corneal section by Haab's magnet. Recovery. V = $\frac{20}{200}$.**

Chas. Weber, aged thirty-seven, Rochester, N. Y. Admitted December 5, 1900, with piece of steel in eye. New corneal section was made and foreign body extracted by Haab's magnet. It was a needle-shaped, prismatic piece of steel *6mm* in length and about *1* x *1mm* in cross-section. Discharged December 12, 1900, with a complete field and V = $\frac{20}{200}$. Incomplete history.

Case 30. **Piece of steel entered vitreous at corneo-scleral junction. Iridectomy, foreign body extracted by Haab's magnet. Panophthalmitis, no sight.**

Thomas Mead, aged fifty-three, Jersey City. Chip of steel flew into right eye 28 hours previous to admission

on February 27, 1901. Sclero-corneal wound at lower limbus, anterior synechia, considerable congestion. Iridectomy made downward and somewhat nasal. No difficulty mentioned during extraction of a flat, ellipsoid piece of iron, about ½*mm* thick and 5 x 3*mm* broad, with round borders, but rough and rusty surfaces. There was a good deal of reaction the next day, œdema of the upper lid, chemosis, conjunctival discharge, and pain. No mention made of lens or fundus. Two days after the operation the symptoms had been the same, no perception of light. Beginning panophthalmitis when patient left on his own responsibility, March 1, 1901. No further account of him.

Case 32. **Lacerated wound of cornea, new incision at sclero-corneal junction, iridectomy, piece of steel extracted by Haab's magnet. Slight infection. Recovery.**

Michael Fennely, aged thirty, Jersey City. Admitted March 18, 1901. Lacerated wound of cornea indicated entrance of an irregular foreign body into right eye, large magnet evidenced presence of steel. Incision at sclero-corneal junction and iridectomy. When put near the Haab's magnet again, the foreign body escaped through the incision, and at the same time cataractous lens-matter. It was a three-leaved chip of steel, hammer-shaped with uneven surfaces. The smallest leaflet has a sharp point and a length of 1.5*mm*, the second is flat with an unciform end and is 2 x 3*mm* in length and breadth; the third is wedge-shaped 1*mm* thick, 1.5*mm* deep, and 2*mm* high. The day after the operation wound was slightly infiltrated, upper lid swollen, ecchymosis at temporal side of the eye. During the following days pain and swelling disappeared, some more cortical substance was removed, anterior chamber became normal. Recovery. Discharged April 17th.

Case 39. **Piece of steel entered through cornea and iris, partial cataract. Corneal incision. Extracted by Haab's magnet. Recovery. Cataract. V = $\frac{2}{200}$.**

Moses Feldergreen, aged thirty-five, New York. While working on January 29, 1902, something struck his left eye. Admitted January 31st. Wound through cornea and iris,

lens partially cataractous. Magnet caused considerable pain, iris bulged, and a piece of steel was drawn through the iris. Section of lower portion of cornea was made with keratome and the foreign body extracted. Wound was closed two days later, blood at bottom of anterior chamber absorbed, eye became free from irritation, lens dull. Tn. V = $\frac{2}{200}$ when discharged on February 7, 1902.

Case 40. **Piece of steel entered through cornea, iris, and lens and lodged in ciliary body. Beginning infection, hypopyon. Extracted by Haab's magnet through canal of entrance. Recovery. Can count fingers.**

Fred Kendall, aged twenty-six, Bridgeport, Conn. Admitted March 7, 1902. While striking two hammers, one against the other, chip of iron struck left eye. Wound of cornea and iris on temporal side, lens somewhat opaque, fundus visible. Veins moderately congested; foreign body not discovered by ophthalmoscope. V = $\frac{20}{200}$. Pain at lower part of sclera on approach of magnet. Patient fainted during trial of magnet, so operation postponed. Twenty-four hours later sight had diminished to mere recognition of movement of the hand, corneal wound infiltrated, hypopyon *2mm* in height. Media dull, fundus-reflex hazy. Foreign body brought by Haab's magnet into anterior chamber from ciliary region where it had lodged. Extracted readily through canal of entrance. Small piece of iris prolapsed and was removed from wound March 12th; eye somewhat soft, pupil moderately dilated, some blood in anterior chamber. Light-perception good. During following days blood absorbed, irritation ceased, corneal wound closed, wound of iris closing, track of foreign body marked by a yellowish-white deposit. Sight improving slowly, tension keeping low for some days. V = p. l. T – 1. Discharged March 24, 1902.

Case 42. **Piece of steel entered vitreous through sclera. Section at the limbus corneæ, extraction and recovery. V = $\frac{20}{30}$.**

J. A. Strambert, aged 41, New London, Conn. Came June 3, 1902. While driving a nail yesterday a piece of iron struck sclera about 4.5*mm* from limbus in the vertical meridian. Wound had been stitched before admission. V = $\frac{20}{30}$.

Field slightly contracted up and in. Tn. Cornea, lens vitreous clear. Some blood at bottom of vitreous about 4*mm* deep. Moderate pain and congestion.

Operation: On approaching the magnet pain was felt in lower ciliary region, iris bulged, and chip appeared in the pupil. On breaking the current it dropped back. Incision at the limbus slightly outward and upward. At another trial the foreign body traversed the pupil and flew to tip of magnet. It was 4*mm* long, flat on cut side, convex on other, circular in shape, lustreless. Good progress during following week, wound closed, pupil dilated; a small synechia down and outward broke up under atropin. Tn. Cornea and aqueous cleared up, lens remained clear. Some opacities in vitreous and a circumscribed spot on posterior pole of the eye below and to nasal side of the disk. Eye white, hazy opacities in vitreous; V = $\frac{20}{50}$ when patient was discharged on June 20, 1902.

Case 44. **Piece of steel entered through cornea, iris, and lens. Extracted by Haab's magnet. Cataract extracted. V = $\frac{20}{50}$.**

Chas. M. Piper, aged thirty-two, New York. Admitted June 16, 1902. Piece of steel in right eye for 24 hours. Fine scar in centre of cornea, small wound in upper and temporal part of iris. Moderate circumcorneal congestion, pupil moderately dilated, lens partially opaque. Piece of steel could be plainly seen in the vitreous posterior and to the temporal side of lens; it was movable. Posterior synechia on temporal side. On approaching the magnet no effect was at first experienced. The foreign body could not be drawn into the anterior chamber because of the posterior synechia. Iris could be seen bulging in lower and temporal quadrant, pain felt. Opening made in upper and nasal quadrant of cornea. The foreign body drawn across pupil into anterior chamber, and after a little manipulation it flew to magnet. Irritation disappeared during the following week, wound closed. Tn. Pupil dilating slowly, lens becoming more opaque. V = $\frac{5}{200}$ when discharged June 28, 1902. He was readmitted on March 9, 1903, and, the functions being normal, soft cataract was extracted. Pupil round, fundus clear.

On April 14, 1903, thickened capsula was split through needling operation, and patient had with cataract-glass V = $\frac{20}{30}$. Same sight when seen October 2, 1903.

Case 48. **Chip of steel entered vitreous through cornea and lens. Magnet unsuccessful during two days. Third day corneal incision, foreign body extracted with piece of iris. Cataract extracted, siderosis. V = $\frac{10}{200}$. Beginning detachment of retina.**

Oswald Zaehler, aged forty-seven, New Britain, Conn. When admitted on November 8, 1902, a piece of iron had been in left eye for 36 hours. Minute motion of sideroscope when approached below cornea. The foreign body had penetrated upper portion of cornea and lens; both are dull, no red reflex. No infection. When put to magnet, sclera bulged below cornea, but magnet failed leading the foreign body into the anterior chamber. Same experienced on November 9th. That evening a trace of blood was noticed at the bottom of the anterior chamber. When put to the magnet November 10th, iris bulged near the lower limbus; incision at that place; iris pulled out by magnet was cut off, small piece of iron found in it. It was 1 x 1.5*mm* in diameter and very thin, with sharp edges. Normal recovery, no irritation. Tn. When discharged November 15th, wound was healed, lens cataractous, V = $\frac{1}{30}$. Readmitted for cataract extraction March 31, 1903. Eye was free from congestion, functions normal, iris brownish discolored (siderosis); small entanglement of iris to the scar. Eye healed nicely after extraction of the soft cataract and patient had V = $\frac{10}{200}$. Some thickened capsule in the pupil when he left April 15th. He presented himself December 27, 1903, in the dispensary. Pupil seemed rather clearer, sight was the same, but beginning *detachment of the retina* was noted. Color of iris unchanged.

Case. 49. **Chip entered through cornea and lens; indicated by magnet; corneal incision; chip led around lens and through pupil into anterior chamber. Extracted. Cataract. Good light-perception.**

Mayk Miller, aged thirty-two, Bridgeport, Conn. Admitted November 12, 1902. Piece of steel had entered eye 24 hours ago. Horizontal wound in the upper and temporal portion of cornea, iris cut through, anterior chamber empty, trace of

blood at lower irido-corneal junction. Slight motion of sideroscope. When approached to magnet pain felt and lower portion of iris slightly bulging. Corneal section near lower limbus. At another attempt foreign body came through pupil into anterior chamber and was extracted by Haab's magnet. No iridectomy. Lens dull, light-perception good in all directions. During first four days some irritation was present, œdema of the upper lid and slight conjunctival discharge. When patient left on November 18th, the eye was free from any infection, cornea clear. Tn. Lens more opaque, good perception of light.

Case 51. **Chip of steel entered through cornea and iris, extracted through enlarged wound. Recovery. Can count fingers.**

T. S. Battie, aged thirty-eight, Harlem. Admitted December 11, 1902, with piece of steel in his left eye for some hours. Considerable congestion, wound through temporal and upper portion of cornea and iris half-way between pupillary margin and limbus corneæ. After several attempts near magnet iris bulged. Corneal wound enlarged by Graefe knife. At another trial with the magnet the foreign body rushed out so quickly that it was impossible to decide whether it appeared through the pupil, or through original wound of the iris. The latter seems more probable because there was no injury of the lens in the pupil noticed. Could count fingers after the operation. Piece of steel was *4mm* in length and 1 to 1.5 *mm* in thickness. Two days later anterior chamber was filled, eye free from irritation. Recovery. Left December 13, 1902.

Case 53. **Piece of steel entered through cornea. Iritis. Hypopyon. Corneal wound enlarged; chip led around lens into anterior chamber and extracted. Recovery; circumscribed opacity in lens. V = $\frac{3}{200}$. Lens clearing up.**

James Vogel, aged thirty-three, Rensselaer, N. Y., was admitted February 13, 1903, a piece of steel lodging in his eye since yesterday. Small corneal wound of upper and temporal quadrant. Cornea and anterior chamber slightly dull, small hypopyon, iris hyperæmic; pupil dilating under atropin, superior and temporal portion less. At second attempt near magnet bulging of iris at place described and foreign body escaped into anterior chamber. Corneal wound

enlarged and chip extracted at third attempt. Thin wedge-shaped piece of steel 4*mm* in length, 1 to 1.5*mm* in width. Hypopyon was absorbed the next day, cornea clear; lens opaque near area of corneal wound, otherwise clear; scar flat, iris slightly bulging at the wound. Irritation disappeared soon, cornea cleared, wound healed, fine radiating opacities of the lens, posterior synechiæ, fine adhesion to corneal scar. Eye free from irritation and V=$\frac{1}{200}$ when patient left February 25, 1903. Seen later his lens clearing up, though sight has not improved much.

Case 54. **Head and eye of a sewing-needle entered through cornea, iris, and lens. Corneal incision made near limbus. Slight infection of the wound. Recovery. Cataract. V=$\frac{1}{200}$.**

Mrs. McConnell, aged thirty, North Adams, Mass. While sewing yesterday on machine the needle broke and piece of it entered her right eye. On admission March 21, 1903, wound at lower and nasal quadrant of cornea; after dilatation of pupil corresponding portion of lens opaque. Iris dull but wound not visible. Slight reaction of sideroscope. Under influence of the magnet iris bulged below the corneal wound. With keratome an incision was made at the limbus near the wound and was enlarged with Stevens's scissors. At the third attempt the piece of needle escaped. It was 10*mm* in length and more than 1*mm* in diameter; the tip of the head was missing. The two sides of the needle's eye were broken, about 1*mm* from the end; they were curved almost at right angles to the axis of the stem and sharp-pointed. It is remarkable that the foreign body came out with the hooked portion first, without injuring either iris or cornea. The next day there was no reaction or swelling present and patient could count fingers. In the night patient complained of pain in her eye and March 23d, the following day, the corneal wound was slightly yellow, anterior chamber was clear, pupil dilated, with focal illumination somewhat whitish, fundus-reflex down and nasal (detachment of the retina?), lens opaque. Discharged March 25th, eye being in good condition, wound and anterior chamber clear, slight conjunctival congestion. Can count fingers.

Case 55. **Ragged piece of steel entered vitreous through cornea, iris, and lens. Corneal section and iridotomy, extraction under difficulty. Panophthalmitis. Enucleation.**

Chas. Enroth, aged twenty-five, New York. Piece of steel struck left eye 24 hours before admission on April 3, 1903. Large perpendicular wound in cornea, incarceration of iris in lower third of corneal wound, iris discolored, lens opaque, slight chemosis. Severe pain felt when approached to magnet and iris soon bulged at temporal and lower portion near limbus. Corneal section and iridectomy. Two attempts at extraction failed, section enlarged by Stevens's scissors. Large piece of iron escaped with difficulty. No perception of light. Piece resembled vomer, lower ridge 0.5*mm* wide at anterior, 2.5*mm* at posterior end, and 5*mm* high, posterior side 2.5 to 1*mm* wide, being slender from bottom to top; anterior side is ragged and thin and 7*mm* long. Wound was closed the next day, but chemosis and irritation increased, lids swollen. During the following 10 days irido-cyclitic tenderness set in, wound was infected, anterior chamber full of pus. The symptoms increasing, the eye was enucleated April 20th, and large abscess was found in vitreous. Patient left April 27, 1903.

Case 56. **Cornea, iris, and lens perforated by piece of steel. Extraction through enlarged wound after iridotomy. Recovery. V = $\frac{15}{200}$.**

George Graf, aged forty-six, Portchester, N. Y. Admitted April 22, 1903. Left eye hit by steel while hammering 24 hours ago. Wound in temporal and lower portion of cornea; iris slightly ruptured, but not swollen; lens dull. After several unsuccessful attempts the foreign body appeared in the anterior chamber. Wound enlarged by Stevens's scissors and iris incised. Foreign body removed with difficulty. It was a wedge-shaped chip of steel, thin, 2.5*mm* long, 1*mm* wide, with rough edges. Slight irritation disappeared during the following fortnight; wound healed promptly. Fine anterior adhesion persisted. V = $\frac{35}{200}$. No irritation when patient left on May 11, 1903. October 6th, simple extraction of cataract and a few days later iridectomy; healed. V = $\frac{15}{200}$.

Case 61. **Infected chip of iron in eye for one week. Hypopyon. Chip brought into anterior chamber by magnet and removed through new corneal incision. Linear extraction of cataract, prolapse of iris cut off. Iritis, pupil closed and reopened by iridectomy. V=$\frac{8}{200}$. Recovery.**

W. Manning, aged twenty-eight, Elmira, N. Y., was admitted December 12, 1903. A piece of steel had entered his left eye a week ago. Cornea hazy, corneal scar white and infected, large hypopyon, anterior chamber deep, iris sunken; pupil large and grayish-yellow. No fundus-reflex. Perception of light. Severe pain was felt. when approached toward the magnet. After a short while a large splinter of steel rushed through the pupil and toward the cornea, coming from temporal side of the interior. Small corneal section by Graefe knife. At another attempt the foreign body flew to tip of the magnet. The next day hypopyon was smaller, irritation diminished, patient suffered less pain and said he slept last night for the first time since the accident. During the following week paracentesis of the anterior chamber was performed three times to allow escape of the hypopyon. Cataractous lens was swollen at the same time, slightly increasing the tension. On December 18th, corneal section was reopened, therefore, and enlarged by Stevens's scissors under holocain. Purulent aqueous escaped and an attempt was made to remove the infiltrated lens-matter by pressure of the finger. This proving extremely painful, ether had to be given. Cataractous mass pressed out partially and a small portion of prolapsed iris cut off. Anterior chamber filled and clearer next day. T — $\frac{1}{2}$. Flake of lens matter hanging out of the wound was removed by spatula; corneal section reopened by a probe and some remnants of the cataract allowed to escape. No pain and no hypopyon during the following two days. December 22d, another portion of cataractous mass removed; pupil gray from remnants of the lens.

December 25th, wound was clean, considerable irritation still; broad impaction of iris into corneal scar. Pupil closing. Light-perception good at all directions. T — $\frac{1}{2}$, lowered temporarily by eserin. When the tension was normal on

December 28th, iridectomy was made upward, particle of lens-capsule removed from pupil; small clear coloboma resulted so that patient was able to count fingers. Atropin. During following week tension was normal or at times rather lower, atropin was given, anterior chamber filled, coloboma was clear, but fundus hazy. V=$\frac{6}{200}$. January 9, 1904, patient left the hospital. Coloboma remained clear so that the upper portion of fundus could be seen. Irritation had disappeared. Eye free from pain. V=$\frac{8}{200}$ with cataract glasses. Foreign body unfortunately could not be measured because it had to be sent to railway company of which patient was an employe. Seen April 18, 1904, eye free from irritation, pupil closed again. Refuses another operation.

Case 62. **Large piece of steel entered through cornea, iris, and lens. Extracted through canal of entrance. Linear extraction. Panophthalmitis. Enucleation.**

John Canary, aged twenty-six, Paterson, N. J. Piece of steel entered right eye 12 hours previous to admission on December 29, 1903. Wound of cornea, slight impaction of iris, irritation, pain, slight œdema of upper lid, pupil gray. Light-perception. At second attempt with magnet through the canal of entrance a chip of steel escaped *12mm* long, *2mm* broad, having rough, uneven surfaces and a sharp, somewhat curved point. Day after the operation anterior chamber and cornea were hazy, wound yellowish, lens more swollen, chemosis. Patient suffered a good deal of pain in his eye. Atropin, sublamin. 1:3000 and hot applications were applied. Irritation increased. Anterior chamber opened twice, and the infected and swollen lens matter removed with the help of a Daviel spoon. For a few days the eye gave the impression as if the irritation would decrease, but gradually an infiltration of the cornea set in, beginning in the deeper layers of the lower portion, so that after a few days nothing but a small zone at the upper portion of the cornea remained clear. The anterior chamber did not fill. — T. January 9, 1904, the eye was less irritated and patient left at his own request. He presented himself in the dispensary on January 16th, his eye seeming improved, it was less irritated and cornea was clearer. Light-perception. January 26th, however, he came back, his eye

being worse. Pronounced symptoms of panophthalmitis. Enucleation. Abscess found in vitreous.

Case 63. **Chip of steel entered vitreous through cornea and lens. Extracted through new corneal section. Iritis, hypopyon. Recovery.**

Peter Snyder, aged fifty, Albany, N. Y. was admitted October 10, 1902, with a piece of steel in his left eye for the last four days. Corneal wound, traumatic cataract, chemosis. Sideroscope showed no reaction. Magnet located it and drew it into anterior chamber. Corneal incision near limbus, foreign body extracted. Iris soon became swollen, chemosis increased, hypopyon gathered, but wound did not show trace of infection. — T. Light-perception in all directions. In a week iris cleared up, anterior chamber became clear, tension normal. Eye was free from congestion when patient left on October 23, 1902.

Case. 64. **Piece of steel entered eye four months ago. Eye quiet until a few days ago. Cataract. Foreign body led into anterior chamber and extracted through new corneal section. Recovery.**

Thomas Mason, aged thirty-five, Elmira, N. Y., was admitted April 18, 1904. About Christmas, 1903, his right eye had been pierced by a small piece of steel and it was free from congestion two days later. Patient did not notice that his sight was impaired until a few days ago, when eye was slightly red. $V=\frac{1}{200}$. No scar found in cornea or sclera. An opaque patch visible in both anterior and posterior capsule of the lens. Diffusely opacified lens, dim red fundus-reflex. After a few attempts near the magnet, the iris was seen bulging and at another attempt the foreign body appeared in the pupil and fell to the bottom of the anterior chamber. A corneal section was made with the Graefe knife a little below the centre. At another attempt with Haab's magnet the foreign body came out readily. Iris which became caught in the wound freed itself by contraction within a few minutes. Pupil round. There was no sign of siderosis; no difference of the color of both irides, no deposits upon the anterior capsule. The next day pupil was round and fully dilated,

anterior chamber of normal depth. Can count fingers. Atropin, bandage, rest in bed. During the following days the eye became free from congestion, no pain, faint gray streak indicates the corneal section. Lens more opaque $V=\frac{3}{200}$ when patient was discharged, April 26, 1904.

Case 66. **Foreign body entered through sclera, intraocular hemorrhage. Foreign body led into posterior chamber, corneal section, iridectomy; extracted.**

Amos Root, aged forty-four, Fort Edward, N. Y., was admitted May 23, 1904. While looking out of the window of his engine 36 hours ago something struck his left eye. Sight lost instantly and patient suffered from severe pain. On admission eye was very much congested and tender when touched. Scleral wound *3mm* from nasal side of cornea, a small flake of vitreous protruding. Cornea and anterior chamber hazy, iris slightly swollen, pupil dilated by atropin. Dull fundus-reflex, faint perception of light. No attempt to extract the foreign body through the canal of entrance, but tip of the large magnet was brought near temporal and upper part of cornea. After several attempts severe pain was felt, iris bulged up and out near limbus and a fine trace of blood fell down to the bottom of the anterior chamber. With the Graefe knife a small corneal incision was made up and out near the limbus and at another attempt a wedge-shaped piece of steel flew to the tip of the magnet. Prolapsed portion of iris was cut off, pillars freed. The following day anterior chamber was filled, wound smooth, hyphæma, some congestion. Patient had a good night, no pain. Temporal and upper portion of lens opaque. The third day after the operation the conjunctival congestion had diminished, pupil was larger, hyphæma had partially absorbed. Cornea was clearer, but fundus dull from intraocular hemorrhage. Light-perception at all directions except below. Corneal wound was healed and free from infection. Pupil was grayish, lens within the coloboma completely opaque. Patient having been free from pain all the time since the operation and having heard that his eye was improving refused to stay longer. Discharged May 26, 1904. While at home the condition

became worse and he re-entered the hospital for enucleation June 24, 1904. Abscess in vitreous.

Case 7. **Foreign body entered through nasal part of cornea, iris, and lens. Was led around the lens, at temporo-inferior side into posterior chamber and through pupil into anterior chamber. Extracted through fresh corneal section. Perfect and permanent recovery. V=$\frac{20}{20}$. Opacity of lens cleared up perfectly.**

Case 9. **Entrance through cornea and lens. Panophthalmitis in twenty-four hours. Chip removed immediately. Exophthalmus. Chemosis. Lids stitched together. Swelling soon diminished. Lower half of cornea sloughing. Enucleation. Scar in posterior part of sclera.**

Case 10. **Hypopyon, iritis twenty-four hours after injury, checked by extraction of foreign body. Posterior synechiæ detached with forceps. Foreign body with a string of ciliary processes extracted. Hemorrhage. Recovery with somewhat shrunken, but quiet eyeball.**

Case 11. **Infected chip of iron; purulent irido-choroiditis. Extraction of chip under loss of vitreous. Shape of eye preserved.**

Case 12. **Piece of iron entered vitreous through cornea and lens. Extracted by leading it into lower part of posterior chamber. Keratotomy. Extraction with Haab's magnet. Patient doing well.**

The number of cases of this class is 30; in none of them could the foreign body be seen, in some, however, it was indicated by the sideroscope. Recently the sideroscope test has been abandoned, as it has been found impossible to depend upon its indications, even in the case of fairly large chips of iron, the presence of which could be easily shown, if the magnet "was used as a sideroscope" and which in fact were removed by Haab's or even Hirchberg's small magnet. In three of those 30 cases (55, 62, 9) enucleation for panophthalmitis was inavoidable. In one panophthalmitis had been assumed, when patient

left (30), but the eye remaining quiet it might have been saved; no later account of patient obtainable. In two cases (42, 12) it was possible to follow the chip as it was led by the magnet around the equator of the lens into the pupil and anterior chamber, whence it was extracted through a new corneal incision. In 9 cases the foreign body could be removed through the original wound, which had to be enlarged for that purpose; the rest of the cases required a fresh incision 14 times in the cornea, 3 times in the sclera, and in one case at the sclero-corneal junction. The result as regards sight varied between $\frac{20}{20}$ and mere perception of light, a good many patients having favorable prospect for improvement after extraction of their traumatic cataract. Some of them indeed had to be satisfied with having saved nothing but the shape of their eye. The time during which the foreign body had remained in the eye varied considerably; one *e. g.* was removed 107 days after the accident had occurred. It seems not to be worth while to compare the cases as to this point, because the result does not depend upon the length of time which passes between the accident and the removal as much as upon the seat of the foreign body and its more or less aseptic condition. Ten of the cases had distinct symptoms of infection on admission (17, 26, 30, 40, 55, 61, 62, 9, 10, 11) and 7 of these were saved. The following cases are of special interest.

Case 17. A large piece of steel 20*mm* long remained in the eye and the magnet failed at first to show its presence. After it became apparent that it was there, the magnet nevertheless failed to extract it during a whole week, though pain was elicited. As it showed during the treatment, the splinter was fixed in the upper wall of the eyeball and was loosened only by the long-continued trials. The small Hirchberg magnet was introduced into a new scleral incision, but in vain. Another scleral section was made and after hard work the foreign body could be removed (cf. history). It is remarkable, that

a piece of such dimensions was tolerated by the eye during 9 days without destroying it.

Case 23 shows similar features, inasmuch as shortly after the accident the magnet had been applied repeatedly without result. Three weeks later the removal was effected through a fresh scleral incision, which is in accordance with universal experience, that only in a comparatively small number of cases does the magnet happen to extract foreign bodies through the original wound. For what reasons? 1st. The foreign body after crossing the vitreous may become fixed at the posterior wall and may be drawn to that part of the globe to which the magnet at first had been applied at random. It may be of benefit, therefore, to question the patient as to his position during the accident and as to the direction taken by the foreign body. That it is impossible to depend even upon the most accurate answer of the patient is due to 2d, the fact that, as known, a good many foreign bodies after striking the posterior wall rebound and locate more anteriorly.

3d. The foreign body may have been encapsulated in a certain position, resisting at first the magnetic power. The physician, after having obtained the evidence of the presence of the foreign body applies the magnet at different points of the eyeball. He succeeds in loosening the piece of steel in a direction opposite to the canal of entrance and a new incision far away from the original wound may be required; so *e. g.* in Case 42, where the scar of the original wound was located 4.5*mm* from the limbus corneæ and a new incision was made at the limbus corneæ.

4th. The foreign body may *become free spontaneously and drop to the bottom of the vitreous chamber*, whence it may be drawn by the magnet to any spot where the magnetic tip is first approached.

Cases 54 and 62 may be mentioned on account of the difficulty met with in the extraction of very unfavorably

shaped foreign bodies. It is remarkable that a piece of a needle having two curved and sharp points, did not cause any laceration of the tissue during the extraction. Though in 62 the chip had made a lacerated wound and though it proved extremely difficult to deliver it, the operation has been a success. Infection unfortunately destroyed the eye.

Case 61 is a splendid example of cured infection. Patient's eye showed a large hypopyon on admission. Hypopyon became smaller after the removal of the foreign body. In the course of the treatment all effort was directed to allowing the escape of pus from anterior chamber and to check the infection in this way. The development of the cataract resulted in temporary glaucoma, which was cured by linear extraction, as well as repeated removal of swollen lens-matter and instillation of eserin. At the same time the iritic process led to complete closure of the pupil, so that patient had hardly any perception of light. An iridectomy—usually of uncertain result during an inflammatory process—enabled patient to count fingers at 15 feet with the aid of a cataract glass, giving him at the same time good prospect for improvement of his sight.

(*To be Continued.*)

AN UNUSUAL FORM OF HEREDITARY CONGENITAL CATARACT OCCURRING IN SEVERAL MEMBERS OF A FAMILY.[1]

By Dr. BURTON CHANCE, Philadelphia.

(*With five drawings on Text-Plate XI.*)

IN this report I intend briefly to describe the case of a family in which five members are affected by a very definite and peculiar variety of congenital cataract. The family consists of a man, his wife, five sons, and one daughter; the persons known to be affected are the father, the third, fourth, and fifth sons, and the daughter.

The man has no recollection of his parents having disease of their eyes, though he remembers that they wore glasses in his youth. His father lived to be fourscore; his mother was already a widow with one child when she and his father married. By this union there were three sons. The step-sister had bad sight, and one of her five children, a girl, had eye troubles. His two brothers had good sight, but as he has been separated from all his family for many years, nothing positive as to their history can be given. His wife, the mother of all his children, has good sight, and her history is negative.

The first member of this family I saw was the sixth child, a boy of eleven, who came for the treatment of a black eye. The father said he had noticed that this boy at six could not see as well as the other children could at that age; later he got glasses for him at a jeweler's.

[1]Read before the American Ophthalmological Society meeting at Washington, D. C., May 8 and 9, 1907.

Except for an attack of measles and of scarlet-fever his health had been good. He was not as tall as boys of his age usually are, neither was he as robust mentally. He made but little progress at school.

In bright light the boy appeared dazed, and when wishing to examine objects around him he peered at them. The vision of each eye equalled $\frac{5}{40}$, but with $-1.75-4.$ ax 180 $V=\frac{5}{10}$. The eyeballs were well formed and free from external anomalies, while the corneas were clear and the pupils round and mobile. In the centre of each lens was an unusual opacity. This opacity had the form of a sharply defined circular disk; it was very thin, and placed deep in the lens, apparently between the nucleus and the posterior pole. These disks were about the size of the pupillary spaces, being placed symmetrically, of the color of boiled sago, and of a minutely granular consistence. In the right one there were clumps of opacities which reminded me of mitotic figures; in the left there was an indefinite star in the centre, in the sections of which, arranged in a radiating manner, there were the same kind of denser masses as were seen in the right. (Fig. 1, Text-plate XI.)

While the disks were translucent, no details of the fundus could be made out through them, though beyond their circumference the funduses could be studied perfectly, for the peripheral portions of the lenses were quite clear. The retinas and choroids were well preserved for so marked a grade of myopia. No uveal anomalies were seen and no evidences of rachitis found.

I noticed that the boy's father also peered about while finding his way in the darkened room. He allowed me to examine his eyes and to my surprise I saw opacities in the lenses similar to those found in his son's. He is a railway engineer, and he rather resented the suggestion that his sight could be defective. He is moderately myopic and wears glasses when reading.

The cataract in his right eye was reniform, with the

hilum on the lower border; that in the left was almost circular having a flattened base. Each was as though a film of sago-like substance had been placed behind the pupil, which on magnification was seen to be homogeneous and finely granular. (Fig. 2, Text-plate XI.)

The third son, aged twenty, is a machinist, and has good sight. Deep in his right lens was a dense, opaque clump in the nasal half of a faint circular disk; while in the left there was a disk of such extraordinary thinness as to be scarcely detected—it might have been likened to a simple condensation of the crystalline substance. (Fig. 3, Text-plate XI.)

The daughter, a healthy rosy-cheeked girl of sixteen, also had disks in her lenses; that in the right was studded with tiny dots, and in the centre was a dense opacity. In the left one were several clumps with fine dots about them. (Fig. 4, Text-plate XI.) Her vision was only $\frac{4}{60}$, in the right, and $\frac{5}{30}$, in the left eye, but this was due to a general myopia of four dioptres.

The fourth son, a boy of thirteen, a myope whose vision was $\frac{5}{15}$ in the right and $\frac{5}{30}$ in the left, also had disks in his lenses. In his case they were dot-like in consistence, but irregularly arranged; in each were six distinct circular vacuoles. (Fig. 5, Text-plate XI.)

These cataracts were partial and circumscribed and they could be seen only by using strong lenses in the ophthalmoscope. They were of the same kind in every case and they were large enough to block the usual pupillary spaces. When the pupils were dilated the opacities shown out and measured about four millimetres in diameter. In each person they were double and without exception accurately symmetrical in the two eyes. They appeared to be stationary.

The exact position of the opacities was hard to define. They were not polar, neither were they nuclear, but they seemed to lie between the nucleus and the posterior

pole. The disks were almost without thi ckness,and I can only conjecture as to their nature.

The visual acuteness was below normal in every case, for myopia was defined in each, varying from less than one dioptre, in the case of the father, to five dioptres of compound astigmatism in the youngest child.

The father was a tall muscular man, and the members of the family seen, including the mother, were apparently healthy. The teeth of the mother, of the daughter, and of the fourth son were badly decayed, though in none of the family were there signs of rhachitis. (At present the branches of the family cannot be reached, for they are lost in Germany, so that it is neither possible to know how many other persons are affected with cataract, nor to ascertain from which stem the defect had descended. It is probable that it was transmitted from the mother of the man, for she had to use glasses early, and her daughter had defective sight and so had that daughter's daughter.)

The cataracts in this series are so remarkably like those described by Nettleship and Ogilvie, in their paper, "A Peculiar Form of Hereditary Congenital Cataract," read before the Ophthalmological Society of the United Kingdom on June 14, 1906, that one might think this paper a special chapter of their report. These authors found in four generations of a family whose pedigree extended for seven generations, nearly twenty instances of a form of cataract quite like that in these cases which I have described. To these writers the cataract was unique.

I have never seen any cataracts like these and I venture to present this report because of the rarity of their form, and because of their occurrence in so many members of one single family.

Illustrating Dr. Chance's Articles on Congenital Cataract

Fig I

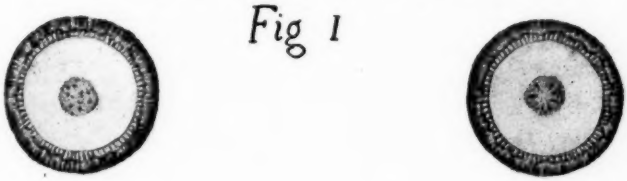


Fig II

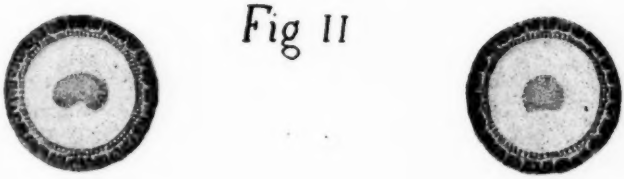


Fig III

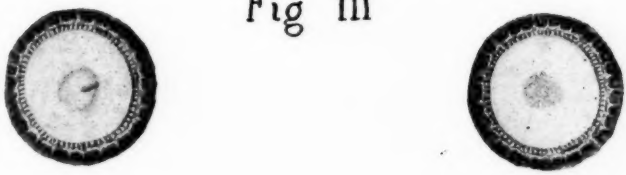


Fig IV

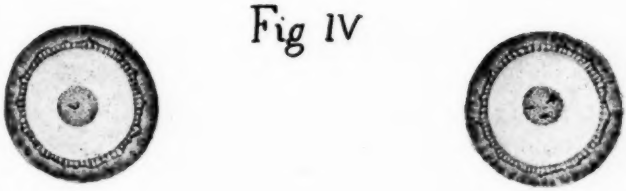
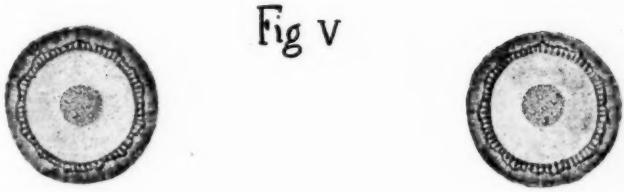


Fig V



DOUBLE CHOKED DISKS ASSOCIATED WITH COMPRESSED-AIR DISEASE (CAISSON DISEASE).

By Dr. LEWIS WHITE CALLAN, New York.

THE following is a brief history of the case.

Robert M., aged nineteen, tunnel worker. Previous history negative. Denies syphilis. Patient was admitted to the New York Eye and Ear Infirmary, December 17, 1906.

History of the Present Illness: Six months ago he first began to work in the East River tunnel as a lock tender and subsequently in the caisson.

He worked for two months without any difficulty. After that he began to have slight attacks of the bends, viz., pains in the arms and legs and other parts of the body on leaving the air lock. These attacks were not severe and would not prevent his working next day. For about two months he had these mild attacks two or three times a week.

One month before his admission to the Infirmary, patient fell to the sidewalk shortly after leaving the lock. He found he could not stand and was helped home and went to bed. Next day he noticed his sight was not as good as usual and that he had diplopia.

He recovered the power in his legs after remaining in bed a few days, but the vision remained poor and at times diplopia was present.

He then gave up work in the tunnel and came to the hospital for treatment.

Condition on Admission: On admission his general condition was good: reflexes normal, except the patellar, which

was practically abolished. Romberg's sign was absent and there were no areas of anæsthesia.

There is a slight convergent strabismus of the left eye which is not constant. Motility outward good. Pupils react sluggishly to light and accommodation. They are equal in size.

Ophthalmoscopic examination shows marked choked disks with a few striated hemorrhages on the nerves and in the region of the maculæ.

Choking of O. D., about 6 dioptries; O. S., 7 dioptries. Vision O. D., $\frac{20}{100}$; O. S. $\frac{20}{200}$. Both fields concentrically contracted.

Retinoscopy after the use of atropia showed compound hyperopic astigmatism; with the full correction on, the left eye did not converge. There was no previous history of strabismus.

Patient was admitted to the New York Eye and Ear Infirmary, December 17, 1906, and received treatment as follows: Rest; K.I., sat. sol., gtts 10 t. i. d., increasing gtts 2 each dose. Inunctions of Hg. 3 $\frac{1}{2}$ t. i. d.

From December 17th to 25th, the patient had frequent severe headaches, vertigo, nausea, and vomiting. No temperature, pulse was normal, and urine and blood examination negative.

December 28th, he vomited frequently. K.I. stopped but did not relieve the vomiting.

December 31st, patient had no vomiting or headaches. Vision O. U. $\frac{20}{60}$. Hemorrhages in fundi had been absorbed. Choking was not quite so marked. Diplopia at times. No strabismus of left eye.

January 13th. Vomiting began again to-day. There was some rigidity of neck muscles. No temperature. Patient had slight convulsions to-day. No paresis of any muscles or group of muscles apparent.

From January 15th on, patient improved rapidly. Diplopia not complained of. No severe headaches or vertigo.

Patient feels well and strong. Discharged February 16th. Vision O. U. $\frac{20}{40}$.

March 27th: Vision O. D. $\frac{20}{30}$; O. S. $\frac{20}{40}$. Choking of nerves decreasing very slowly. The fields are concentrically

contracted. Pupils react well to light and accommodation. No diplopia or convergence of O.S. Patellar reflexes normal.

Hugh Snell, of London, in his book on *Compressed-Air Diseases*, cites a number of cases of caisson disease in which the vision was affected.

In only a few cases, however, were the fundi examined, and those were found normal.

He reports one case where a man had worked in compressed air twelve months. He was attacked one day on the way home with severe vertigo and could not walk alone. Three weeks later, nystagmus and divergent strabismus of the left eye developed. Vision was poor with no changes in either fundus.

Pol and Watelle, 1847, give as one of the accidents following decompression, blindness, which often remains permanent. Snell summarizes the different theories of the etiology of compressed air as follows:

1st. Those of exhaustion and CO^2 poisoning.

2d. Those ascribing the diseases to mechanical congestion of the viscera.

3d. Theories depending on an increased solution by the blood of the gases of the compressed air and liberation of these gases on the removal of the pressure.

The last he prefers as he thinks it comes nearer being responsible for the different symptoms, though he is not sure that it covers all of them.

Paul Bert made a number of experiments on animals at high pressure.

When sudden death occurred after decompression, bubbles of gases were found in the vessels and in the heart. He often found bubbles in vessels of the cord.

When death did not occur at once the gas bubbles were not found, but small hemorrhages and patches of softening in the brain and cord.

Thomas Oliver of London reports a number of cases where the patients complained of a contracted field of

vision and some of defective vision. In a few of these the fundi were examined and found normal.

He considers air embolism to be the cause of the disease.

It is quite plausible that intracranial pressure would be increased either by congestion with subsequent œdema and hemorrhages, or by the rupturing of the small blood-vessels by the gases with the same result.

No doubt not a few of the cases reported did have choked disks, and if the ophthalmoscopic examination had been made in all cases, it would have been found in some of them.

Those cases examined by the ophthalmoscope were all found negative. However, very few were so examined, which would account for the failure to record this very important complication liable to occur in this disease.

VENÆ VORTICOSÆ CHORIOVAGINALES IN MYOPIC EYES.

By Dr. J. VAN DER HOEVE, Leyden.

Translated from the German Edition, Vol. XLVI., by Dr. Matthias Lancketon Foster.

(*With appended Plates XXV-XXVI.*)

DURING an ophthalmoscopic examination vorticose veins may on rare occasions be seen to perforate the sclera in its posterior part instead of at the equator, and then to find their way backward probably through the sheath of the optic nerve. Oeller named such veins venæ vorticosæ choriovaginales. I have had the opportunity to observe this anomaly in two patients at the Leyden dispensary.

The first patient was a woman twenty-one years old who had been fitted with — 5. dioptry glasses eight years before. At that time a small crescent was noted beside each papilla, but no mention of the abnormal course of the vessels was made and it was probably overlooked.

At the time of her second visit the myopia had increased to 10 dioptries and was evidently progressive. L. V., $\frac{6}{12}$; R. V., $\frac{6}{18}$. A crescent was present on the temporal lower side of the left papilla, on the nasal lower border of the right, and into the latter a broad vessel, which received the blood from several large branches, disappeared. It was crossed by a large retinal artery (Fig. 1).

The second patient was a girl ten years old with divergent strabismus of the right eye. L. V., $\frac{6}{9}$ with — .50; fundus

normal. R.V., $\frac{6}{60}$ with -10. On the temporal side of the papilla was a broad crescent in which a broad, deeply placed, flat vessel disappeared after receiving blood from many large branches.

In each of these cases there was an abnormal, deep, broad vessel which passed out of view in the neighborhood of the optic nerve.

Pressure on the eyeball caused the main trunk of the vessel to become pale and empty while the branches became rather darker and pale only after long-continued pressure; the vessel became darker when the common carotid artery and the jugular vein were compressed, and lighter on deep inspiration without compression of the vessels. These tests proved the vessel to be a deep vein formed from many branches and we are obliged to conclude it to be a vorticose vein.

Oeller knew of only 3 cases of this anomaly, but believed it was to be met with more frequently than was commonly supposed. Schoute has reported 3 cases since then, Haab 2, and I am able to add 2 more. It is noteworthy that in all these cases, as well as in the doubtful one pictured by Liebreich, it was associated with a high degree of myopia. Oeller had the idea that the presence of a congenital posterior staphyloma was the cause of the abnormal vascular development, but in Schoute's first case the myopia was not congenital but progressive, and in my first case there was no congenital posterior staphyloma. Therefore as a choriovaginal vorticose vein sometimes exists without the presence of a posterior staphyloma I cannot agree with Oeller that it is an evidence of the congenital character of a staphyloma when present. Schoute's explanation that in myopia the pigment epithelium of the retina is frequently atrophic and so allows the choroidal veins to become visible seems insufficient to me, because although the pigment epithelium is often atrophic in such eyes there

are more non-myopic than myopic albinotic eyes, and if the anomaly is to be found only in myopic eyes the relation between it and posterior staphyloma must be different. Perhaps it may be that the abnormal course of the vessels is the primary cause of the staphyloma. We know that the sclera has less power of resistance where it is pierced by the vorticose veins, whence arise equatorial staphylomata, so it is quite probable that this vorticose course in the posterior portion of the globe produces a weak place in the sclera which slowly yields before the cause of the myopia and thus the presence of a vorticose vein in the posterior part of the eye may be considered to predispose to the formation of a posterior staphyloma. This is an equally good explanation of a congenital and of an acquired staphyloma. My second case favors the hypothesis. Both eyes were exposed to the same influences, but only the eye with the choriovaginal vorticose vein became highly myopic. The other case does not furnish as good evidence because the two eyes were equally myopic, but the abnormal vein is not supposed to be the sole cause of myopia, it can be only one of many predisposing causes and perhaps if it were absent the myopia in that eye would not be so great.

My conclusions are:

1. That the opinion of Oeller and Schoute that this anomaly is not as rare as it is commonly supposed to be is correct.

2. That it does not indicate that an accompanying staphyloma is congenital.

3. That the hypothesis that a vena vorticosa choriovaginalis predisposes to myopia deserves to be investigated.

FORMATION OF A PERMANENT SUPERIOR RETROTARSAL FOLD, IN AN OPERATION FOR SYMBLEPHARON, BY SUTURING TRANSPLANTED FLAPS TO THE TENDINOUS EXPANSION OF THE SUPERIOR RECTUS WHILE THE LID WAS DOUBLY EVERTED.

By Dr. HUGO WOLFF, Berlin.

Translated from Vol. XXXIX., of the German Edition, by Dr. Matthias Lanckton Foster.

THE formation of a permanent retrotarsal fold has been difficult in all the operations hitherto performed for symblepharon, because there was no fixed point to which the transplanted flaps could be attached. During my investigations regarding the levator palpebræ and the topography of the doubly everted lid, it occurred to me that the tendinous expansion of the superior rectus, which is the natural insertion of the upper conjunctival arch, could furnish the desired fixed point for the support of a newly built retrotrasal fold, and I have just had an opportunity to put this idea into practice.

A workwoman in a chemical laboratory, twenty years old, spilled a 40% solution of silver nitrate in her face August 15, 1898. This was said to have been washed off at once with a salt solution which was at hand. When I saw her, six hours later, her face, throat, arms, and hands were black, her right eye was unhurt, and the lids of the left were somewhat

swollen, though the eye could still be opened. The palpebral conjunctiva, particularly in the middle, was white and corroded, that on the eyeball was thickened and as white as porcelain. The cornea was perfectly clear. Warm fomentations were applied day and night. On the third day a slight general haziness of the cornea appeared, although single, distinct, broad, red, vascular stripes had already approached its margin, and the ocular conjunctiva which had been so white had assumed a rosy color. Six weeks later the outer-lower quadrant of the cornea was the only portion remaining uncovered. The inner and upper portions were covered by a traumatic pterygium together with a posterior symblepharon of the upper and lower lids. No further progress was observed during the next six weeks. At this time the palpebral fissure could be opened only to a breadth of *4mm.* There was a triangular adhesion between the inner-upper quadrant of the cornea and the upper lid which measured *12mm* from its base to the retrotarsal fold. On the tarsal surface of the lid a space *3mm* broad was left between its edge and the adhesion. Another symblepharon of about half this size extended about *3mm* over the margin of the inner-lower quadrant of the cornea. A crescentic fold of conjunctiva was attached to the portion of cornea between these and extended to the upper and lower retrotarsal folds. The temporal third of the conjunctival sac was of about normal dimensions.

Operation November 15, 1898. After its attachment had been freed from the cornea the upper symblepharon was loosened to the upper retrotarsal fold, until the lid could be doubly everted. The latter was held in this position and so exposed a rectangular raw surface lying partly on the sclera, partly on the upper lid, which measured over *2cm* vertically and over *1.5cm* horizontally in consequence of the tension on and recession of the elastic margins of the conjunctival wound caused by the double eversion of the lid. It seems to me that this artificial increase of the wound surface to be covered is of advantage on account of the contraction to be expected later. The pathologically thickened tendinous expansion

of the superior rectus had been severed from its attachment to the upper margin of the tarsus in cutting away the conjunctiva, and it could be easily lifted up so as to expose beneath it the uninjured Müller's muscle. This tendinous expansion was seized with two forceps, stretched horizontally forward and cut off at the point to which the upper retrotarsal fold should extend. In the future I will omit this excision and simply cut horizontally through the expansion at this place and suture the upper edges of the flaps into this incision.

To cover the raw surface on the upper lid and sclera not one but two separate flaps were used on the lines laid down by Schmidt-Rimpler. (*Kl. Monatsbl.*, 1875, p. 313). The portion on the lid was covered by a flap *1cm* square taken from the conjunctiva of the sound eye. It was first sutured to the two lateral margins and the upper edge of the tarsus, leaving a small surface on the tarsus bare. The still unattached margin of the flap was then joined to the edge of the expansion of the rectus by a suture at each corner. The portion on the sclera was then covered by a rectangular flap *12mm* long by *10mm* broad, taken from the mucous membrane of the lower lip. This was united by means of a continuous suture with the edges of the conjunctiva while its lower margin extended about *2mm* below the limbus of the cornea. In the future I shall employ Teale's method so as to be able to suture this margin. The upper margin of the flap was then joined to the middle portion of the expansion of the rectus by two sutures which included also the hitherto unfastened middle portion of the edge of the first flap. Thus the upper margins of both flaps were secured to the tendinous expansion of the rectus by four sutures. The conjunctival flap regained its rosy hue shortly after it was placed in position, so that the whiteness of the mucous-membrane flap contrasted with its surroundings.

The upper lid was then returned to its normal position

and the loosened conjunctiva on the inner and lower border of the cornea was sutured to the epibulbar tissue about 5*mm* from the limbus. During the operation the upper lid became moderately swollen. Recovery was uneventful. The flap of mucous membrane from the lip became red on the day after the operation. The motion of the eyeball downward was limited at first, but this spontaneously adjusted itself. Part of the sutures cut their way out, part were removed on the sixth day. On the tenth day the patient was discharged with a movable eye which could be widely opened. The artificial part of the retrotarsal fold was about 2*mm* deeper than the adjoining normal portion.

Three and a half months later a small fold of the conjunctiva had become reattached to the inner-lower quadrant of the cornea. It could be removed at any time by Arlt's method. Otherwise the condition was practically unchanged and the rest of the eyeball was white. The part of the upper retrotarsal fold which had not been operated on had become somewhat flattened, so that a fold 5*mm* long by 2*mm* broad was formed on each side of the artificial fornix when the lid was everted, and caused the artificial part to appear deeper than immediately after the operation. The margins of the transplanted flaps were still clearly distinguishable and were measured under cocaine. The flap taken from the lip and placed on the eyeball was 10*mm* broad by 9*mm* long, the conjunctival flap on the lid 11*mm* broad by 3*mm* long. The latter had by cicatricial retraction grown over the portion of the tarsal surface which had been left bare. When an eye is open all conditions favor retraction of the lids vertically, while the motions of the eyeball, as well as the downward direction of the eyes during the day's work, hinder the contraction of a flap attached to it and to the expansion of the rectus. Ectropion may result from the slipping of the flap. In this case the interference was only sufficient to make the line of closure

horizontal instead of curving slightly downward, and a slight bend of the tarsus caused the ciliæ to be directed obliquely downward, but not enough so to call for further interference. As the effect of the operation has been practically unchanged for three and a half months I think it is proven that the flaps are attached in the desired places and that this fixation guarantees permanent results, and I feel justified in submitting the case to the judgment of my colleagues.

In the future I shall: (1) dissect up the symblepharon until the lid can be doubly everted; (2) make a horizontal incision through the expansion of the rectus at the place to which the retrotarsal fold should extend; (3) replace the lid to avoid swelling, tamponing the angle of the wound to stanch bleeding; (4) prepare the flaps, again doubly evert the lid, suture the flaps to the expansion of the rectus in the way described; (5) it will be better to cover the wounded surface on the tarsus with the rest so as to avoid the supplementary growth upward of the transplanted flap and consequent interference with the movements of the upper lid. This method will be applicable to symblepharon of the lower lid because there is also a delicate tendinous expansion of the inferior rectus, which would probably be thickened as the result of the inflammation and so be easily found. In plastic operations on the conjunctiva this incision through the expansion of the rectus could be utilized.

The excellence of this method depends on the recognition of all the anatomical and physiological conditions. 1. The transplanted flap is sutured at the true insertion of the conjunctival fornix as a natural fixed point. 2. Hence it is in position to follow all the motions of the lid on the eyeball while the eye is closed, particularly when the eye is directed upward. 3. By means of the described fixation the transplanted flap is better adapted to the surrounding and subjacent tissue and therefore unites with it more quickly. In this case the flaps were uniformly

red on the day after the operation, though vascularization usually appears on the third day. 4. The expansion of the rectus afterward exerts permanent tension on the newly formed fornix and so is in position to hinder subsequent contraction.

BACTERIOLOGY OF CHRONIC PURULENT INFLAMMATION OF THE MEIBOMIAN GLANDS.

By Dr. A. A. MALAKOFF, Jr., Moscow.

Translated from Vol. XLIII., German Edition by Dr. Matthias Lanckton Foster.

THE following case is very interesting because the bacillus ozænæ has very rarely been found in the eye and its influence there is unknown beyond a few scattered facts which have been obtained experimentally.

In June, 1899, a patient came to the dispensary and stated that for over five years her eyes had been red and had had a purulent discharge.

Right Eye.—Skin of lids normal except at the margins where it was somewhat reddened. The lower lid was everted, its margin thickened, but not uniformly. Near the punctum was a circumscribed nodule as large as a pea, and at the outer canthus was another tumor which was not circumscribed. On the upper lid at the inner canthus on a level with the punctum was another nodule as large as a pea, The overlying skin was movable. The average thickness of the margin of the lid was *4mm.* The mouths of the Meibomian ducts were unequally dilated, a Bowman probe No. 2 could be introduced easily into some, in one to a depth of 7 or *8mm*, while a conical probe could be passed only with difficulty into others. The conjunctiva was hyperæmic with swollen papillæ and showed scars like those which result from chalazia over the large swellings. When the lids were everted gentle pressure on the cartilage near these tumors caused a yellowish

pus to escape from the mouths of the Meibomian ducts. In the conjunctival sac were yellow flocculi of mucus. All the remaining parts of the eye and the lachrymal apparatus were normal. Vision, 1. Hypermetropia, 1 dioptry.

Left Eye.—Skin of lids normal. On the margin of the lower lid near the punctum was a circumscribed tumor as large as a pea. The middle third of the margin gradually decreased in thickness until it became normal about the junction with the outer third. The conjunctiva of the lower lid was hyperæmic and its papillæ swollen. The mouths of the Meibomian ducts near the tumor were dilated. Ocular conjunctiva, cornea, and all other parts of the eye including the lachrymal apparatus, normal. Vision, 1. Hypermetropia, 1 dioptry.

The patient stated that when young she had suffered from an eye disease which had never been cured. About 15 years ago she had begun to suffer from hordeoli and ulcers on the lids, but these had disappeared at the time of the climacteric. For seven or eight years she has had a tumor of the lid which in her opinion started the disease from which she at this time sought relief. At about the same time she caught cold and a coryza developed which soon smelt badly and was accompanied by an unpleasant taste.

From this time until the latter part of August applications, first of cupric sulphate, later of silver nitrate, were frequently made, while yellow oxide ointment was rubbed in at the same time, but without result. Warm compresses of 1 : 5000 sublimate were then tried and gave subjective relief, but no improvement. During all this time I was never able to detect the least change, either for better or for worse. In October, 1899, she was admitted to the hospital and the only variation from the condition noted in June was that the skin at the margin of the lid had regained its normal color. Pus could be pressed freely from the Meibomian glands.

The nasal mucous membrane was atrophic and covered with dirty-colored crusts with a small quantity of muco-pus. After the crusts had been removed probes passed into the sphenoidal and ethmoidal sinuses detected bare bone. The passage into the frontal sinus was denuded of mucous membrane. Diagnosis: atrophic rhinitis with ozæna. Treatment, cleansing with aqua picis, two tablespoonfuls to a glass of

water, and the application of a 10% solution of hydrogen dioxide to the nasal cavity three times a day.

October 19th.—Under cocaine a triangular piece of tissue, *3mm* broad at the base, was excised from the middle third of the right lower lid for microscopical examination. The margin of the lid was then split on each side of this excision so as to open freely the Meibomian glands. In doing this it was noticed that the cartilage was unusually hard. The wound was then curetted with a sharp spoon, cleansed with hydrogen dioxide, and the place whence the triangular piece had been removed was closed externally with sutures. On the second day after the operation the margins were separated and the wound cleansed with hydrogen dioxide. This was repeated the next day. The tumor of the lid was not particularly large. Healing took place by first intention.

October 25th.—The infiltration and abnormal thickness of the cartilage remained unchanged. No pus could be pressed out. Stitches removed. The right side of the nose was free from crusts and discharge: in the left side there were crusts in the region of the superior meatus.

November 9th.—The margins of all the lids, including the one previously operated on, were split and cauterized with the thermo-cautery. This was followed by a rather severe local reaction caused probably by the cauterization. The eschar remained long in situ. Gradually the inflammatory symptoms disappeared, the lid became thinner and assumed a normal color.

November 23d.—No pus could be expressed from the lids.

The peculiar characteristics of this case were the increased thickness of the cartilage and the discharge of pus from the mouths of the Meibomian ducts. The course of the disease was chronic with no acute inflammatory exacerbations, at least the patient stated that the condition had remained the same for five years, and I had been unable to detect any change during five months. I had never seen such a case before, could not find it described in literature, and when I exhibited the patient before the Moscow Ophthalmological Society only one member had ever seen one like it.

Slides and cultures were made of the pus pressed out of the lid. The slides, after staining with aqueous fuchsin showed a considerable number of pus cells and very many micro-organisms in the form of short little rods with rounded ends, $1\frac{1}{2}$ to 2μ long by 1μ broad. The capsules of the individual bacilli resisted the penetration of the stain, but not uniformly, so that on one slide some of the rods would be well stained while others remained colorless and could be detected only from the contour of their capsules about which would be formed colored circles, but it was necessary only to leave such a slide some time longer in the solution, or to warm it, to stain all the bacilli uniformly. The capsules were stained irregularly, but best, especially when taken from the blood of a mouse or the peritoneum of a guinea-pig, with a $\frac{1}{4}\%$ watery solution of gentian violet. When taken from the blood of a mouse the capsules were more clearly defined than when the bacilli were obtained from other animals or from cultures.

In plate cultures numerous colonies developed during the second 24 hours, which appeared on the surface of the agar like round, projecting buttons with the color and lustre of mother of pearl. With transmitted light and a low power these colonies had a brownish-yellow color and a finely granular structure. Inoculation into various media gave the following results: In bouillon a uniform cloudiness with a deposit which extended upward on being shaken, part becoming dispersed into the bouillon, part remaining adherent to the bottom. After some days a loose membrane of mucus is formed on the walls of the glass where they are in contact with the bouillon. On all kinds of agar and serum after 24 hours a transparent, opalescent, mucous stripe of mother-of-pearl color was formed, which could be drawn into threads and was elevated somewhat above the surface of the agar. After two or three days this trickled down to the bottom of the glass and mingled with the condensation

water. On potatoes the growth was less luxuriant and took the form of grayish-white drops. Milk was not coagulated. On sugar gelatine there was a slow growth of little whitish-gray granules. In some glasses little bubbles of gas formed after from three to five days. On the surface of gelatine whitish mucous colonies were formed which spread over the surface and rose but little above it. In all these cultures the bacillus was one and the same. They vegetated well without air and were pathogenic to white mice and guinea-pigs.

About the same time the same bacillus was obtained in an almost pure culture from the nasal mucus. It could not be stained by Gram's method and showed the same characteristics under the microscope and in culture as the bacilli taken from the Meibomian glands. Evidently the bacillus was the one known as bacillus mucosæ ozænæ and was present in both the Meibomian glands and the nasal mucous membrane.

Very few instances are recorded in which this micro-organism was present in the eye. Neither Guenod, who investigated the bacteriology of healthy and diseased eyelids, nor Uhthoff, who studied that of keratitis and conjunctivitis, even mention it. Löwenberg states that he looked for it in all the cases he examined in which there was coincident ozæna and eye disease. It seems likely that the bacilli ozænæ should enter the eye not only through the naso-lachrymal canal, but also from transmission by the hands or the handkerchief, yet it happens so rarely that I have been unable to find more than two instances of its occurrence recorded, one reported by Guenod (5), the other by Terson and Gabrielides (4). A possible explanation of this strange rarity may be that it is due to a quality fatal to this bacillus in the conjunctival secretion, which is formed of mucus and the products of various glands, and it is further possible that this quality may pertain to the secretion of the Meibomian glands. If this is correct then the peculiar

disease in this patient can be easily explained. Her history is that she frequently suffered from styes for a long time prior to the outbreak of the present disease, and scars of former chalazia were found on the conjunctiva. Such a prolonged affection of the glands might readily destroy their function, alter the chemical nature of their secretion, and so change the fluid in the conjunctival sac into a comparatively good nutritive medium.

I instituted some experiments to determine the pathogenic power of the bacillus ozænæ for different parts of the eye. They were not in every way satisfactory, but I found that a culture injected into the vitreous caused panophthalmitis which resulted in phthisis bulbi. A culture injected into the anterior chamber caused iritis in one case and produced no effect in three. A culture injected into the cornea produced an ulcer from which the eye recovered perfectly. I could not obtain the corneal abscess with hypopyon, described by Guenod and by Terson and Gabrielides, but the rapid recovery after the outward rupture of the abscess seems to me to favor the theory that the conjunctival secretion is inimical to this bacillus, because the improvement began the moment the secretion came into contact with the bacteria. Possibly this was due to a purely mechanical removal of the bacilli, but even then there remains to be explained the great difference in their behavior in the vitreous and in the conjunctival fluid. Attempts to inject a culture into the cartilage in the hope that it would remain in the Meibomian glands failed. I conclude from these experiments that the bacillus ozænæ is pathogenic in the eye only when introduced into the vitreous, a fact which would be of great importance in operations on patients with ozæna if it were not that Fernand Perez (6) has lately assailed the accepted theory that this bacillus is the exciter of atrophic rhinitis and has introduced a new micro-organism with which he has been able to produce atrophic rhinitis experimentally.

Little was obtained from the microscopic examination of the excised piece of the lid because the true seat of the disease was not included. It presented simply signs of inflammation with nothing to explain the nature of the disease or to indicate its location.

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REPORT OF THE TRANSACTIONS OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

By Dr. ARNOLD KNAPP.

MEETING HELD IN WASHINGTON, D. C., MAY 8 AND 9, 1907.

1. **The value of systematic bacteriologic and microscopic study in the treatment of gonococcal conjunctivitis.**

Dr. C. A. Oliver.

During a number of years the author has had the discharge in his cases of gonococcal conjunctivitis regularly examined for bacteria, and he thinks that the result of such an examination is a useful guide in indicating the form of treatment and also in deciding the time when the patient can emerge from isolation.

2. **A rare type of perivasculitis retinæ in a young woman —the result of inherited syphilis.** Dr. C. A. Oliver.

The drawing illustrating the condition in this patient was passed around. She was the daughter of a man suffering from nerve syphilis. The symptoms consisted in an enlargement of the blind spot and central scotoma. The blood-vessels were tortuous and surrounded by white lines and hemorrhages. A similar case has been observed by Joseph Schaebl, professor in Prague.

3. **Extensive perivasculitis followed by elaborate proliferating retinitis in a young colored man, together with the results of X-ray examination of the skull.**

Dr. G. E. de Schweinitz.

Dr. de Schweinitz read the clinical history and the results of the ocular examination of a colored man, aged twenty-three, with nothing important in his family or personal history,

who had the following ocular conditions. Extensive vasculitis and perivasculitis of the retinal vessels, many of which were converted into white cords; elaborate, sheet-like retinal hemorrhages; moderate exophthalmos most marked in the right eye, and for a period of time iridocyclitis of the right eye, followed by extensive proliferating retinitis with the formation of huge, glistening white veils protruding far into the vitreous and carrying upon them numerous new-formed blood-vessels. The most stringent examination failed to reveal any cause for this condition, except that the X-ray examination made by Dr. Henry Pancoast showed an extraordinary abnormal development of the accessory sinuses; the frontal sinuses were enormous and extended the entire width of the frontal region and well around into the temporal fossa. Bony partitions were lacking, and the walls were particularly thin, especially in a negro. The sphenoidal and the ethmoidal sinuses were similarly constructed. The walls separating the sphenoid sinuses from the nasal fossæ and the naso-pharynx were greatly thickened. In the vault of the pharynx there was a large, soft mass of adenoid tissue, and it was suggested by Dr. W. B. Harland, who made the rhinoscopic examinations that the increased thickness in bone might be due to congestion caused by the proximity of the vascular adenoids, leading to hypernutrition. After the removal of the adenoid tissue, there was distinct lessening of the exophthalmos and rapid subsidence of the iridocyclitis. There was no change, however, in the retinal lesions.

The recent observations of Krauss on the connection between disturbances of the naso-pharynx and those of the orbit, especially the presence of vascular swellings situated in the pterygo-palatine fossa, and secondarily invading the orbit, causing pulsation, protrusion, etc., were discussed in connection with this case.

The paper was illustrated with colored diagrams, showing the appearances of the retinal lesions and proliferating retinitis, and with stereoscopic skiagraphic plates showing the lesions in the sinuses.

Discussion : Dr. RISLEY observed the same perivascular changes, after ligation of the common carotid artery, performed for aneurism in the cavernous sinus.

4. **Cases of recurring conjunctivitis.** Dr. S. D. RISLEY.

(1) Attacks of sneezing and profuse lachrimation were brought on in this patient whenever he came within the vicinity of horses. (2) A patient who on any attempt to fondle a cat would be seized with lachrimation and the eyes would become bright red. There was no condition of rose cold or hay fever present.

Discussion: Dr. JACKSON had observed three cases of susceptibility to horses.

Dr. POSEY had also observed three cases, one which was produced from the proximity of bedbugs.

Dr. PYLE thought that these symptoms were merely an expression of irritability of the mucous membrane of the upper respiratory passages, and that they were not at all rare.

5. **Case of melanotic sarcoma of the limbus.**

Dr. C. A. VEASEY.

A man forty-six years of age had had a brown spot near the limbus for twelve years. This rapidly enlarged and after seven weeks two lobular masses were present which covered two-thirds of the cornea. They were firmly adherent and on microscopic examination were found to invade the deeper layers of the cornea extending into the eyeball at the limbus and giving rise to a nodule in the iris. He raised the question whether in these cases it was justifiable to attempt the local removal of the tumor.

Discussion: Dr. JACKSON reported the removal of a black mass situated somewhat posteriorly to the limbus which had been growing for six months and which was found to be firmly adherent to the sclera.

Dr. HOLMES had observed two cases in which the tumor was first locally removed and the eye was then enucleated. The patients, nevertheless, subsequently died from metastases.

Dr. ADAMSON had removed a tumor locally and no recurrence had been observed.

Dr. SHERMAN spoke of a patient in whom the tumor recurred in the orbit and the ethmoidal region and extended rapidly.

Dr. MARPLE reported upon a patient where he had per-

formed a local operation for a tumor in the cornea occupying 3 x 4*mm.*

Dr. VEASEY, in closing the discussion, said that the general opinion seemed to be now in favor of enucleation—which was somewhat different from the more conservative opinion formerly held.

6. **Cases of congenital inequality of the size of the cornea in normal eyes.** Dr. A. A. HUBBELL.

In these two cases the diameters of the two corneæ were unequal; the eyes otherwise were normal.

Case 1. Lack of symmetry of the two corneæ. Vision normal in each. Irides of the same color. The diameter of the right cornea was a scant 10*mm*—left 13*mm*.

In Case 2 the pupils and the color of the irides were not alike. In the right eye the pupil was 2½, the iris was blue and the cornea measured 11½*mm*. In the left the pupil was 4, iris bluish brown, and the cornea measured 13*mm*.

7. **Two histological specimens.** Dr. S. D. RISLEY.

Dr. RISLEY spoke of a peculiar variety of keratitis, in which there was an opacity covering the entire cornea, which was grayish white and rough. This stripped off after the eye had been preserved in formalin.

In the second case, in an eye removed on account of a foreign body a persistent hyaloid artery containing red blood cells was found present.

8. **Four cases of high myopia successfully operated upon.** Dr. WALTER E. LAMBERT.

The method of operating consisted in a free discission and linear extraction. One case presented extensive choroidal changes which, however, did not interfere with a good result after the operation.

Discussion: Dr. WILMER has now operated upon twelve cases, one ten years ago, one nine years, and one eight years ago. The good results in these cases have persisted, and there has been no evidence of myopia.

9. **The post-operative history of sixty cases of simple chronic glaucoma.** Second series. Dr. C. S. BULL.

The operation was iridectomy in every case, and was done

on 115 eyes. In every case there was narrowing of the field, increased intraocular tension, impairment of central vision and cupping of the disk. The majority of the patients showed high arterial tension, and many of them signs of arteriosclerosis. Observation of patients after operation varied from three to eleven years. Best results in those cases with but slight impairment of central vision and slight narrowing of field. Operation should not be regarded as a cure for the disease, but as the best means of arresting its progress. It is not so much the operation in itself, as the early performance of the operation, which gives the best results. Hence the view that iridectomy in chronic glaucoma should be regarded as a last resort, is absolutely wrong and very bad surgery. (Author's abstract.)

Discussion : Dr. DE SCHWEINITZ mentioned statistics from three European clinics to show the varying views at present held on the curative effect of operation in chronic glaucoma.

Dr. HOWE drew attention to the phenomenon that the number of cases of glaucoma varies with the seasons of the year. It seems to be more frequent in the Winter than in the Summer.

Dr. C. F. CLARKE inquired how much of an iridectomy is necessary. He himself was in the habit of making a small iridectomy. He described a probe-pointed keratome which he found of service in enlarging the wound.

Dr. MARPLE inquired whether any hemorrhage had been observed to follow iridectomy in the patients subjects of arteriosclerosis, and if in the presence of an atrophic element the result was unfavorably influenced thereby.

Dr. JACKSON believes that there are cases of chronic glaucoma which are not benefited by operation and had, therefore, better be treated by miotics. The methods of distinguishing these cases from the usual ones are incomplete.

Dr. BULL replied that his method of operating consisted in the use of a lance-shaped knife, the incision being well in the sclera, and a broad iridectomy which includes ¼–½ of the iris.

He had not observed any hemorrhage in this class of cases.

10. **Report of the anatomic examination of an eye showing a swelling of the optic nerve in cupping of the lamina cribrosa.** Dr. BROWN PUSEY.

This eye was one which had been operated upon for glaucoma which was subsequently followed by irido-cyclitis. The eye was enucleated. Microscopic examination showed that the papilla was swollen like choked disk and the lamina cribrosa was pushed back—in other words neuritis in a glaucomatous cup. Dr. Brown Pusey thought this condition was similar to the optic neuritis which was found after inflammations of the anterior half of the eyeball.

11. **Uveitis proliferativa (of Fuchs).** Dr. W. ZENTMAYER.

The clinical histories and microscopic findings in two eyes which presented different types of proliferative uveitis and which excited different types of sympathetic inflammations.

12. **Retinitis, proliferating in character, in a detached retina of traumatic origin. Report of a case with pathological examination.** Dr. WILLIAM T. SHOEMAKER and Dr. C. M. HOSMER (by invitation).

Abstract: Total detachment of the retina presumably traumatic in origin, showing microscopically large and small hemorrhages, formative tissue, new vessels, leucocytes, and excess of supporting tissue, all resulting in the formation of a solid mass in the anterior vitreous which resembled clinically a glioma. Absence of uveitis and of structural changes in the anterior segment of the eyeball. The patient was twelve years old when eye was enucleated; the trauma was sustained at the age of five years, and the present condition had probably been existent to the extent of being noticeable upon inspection for at least three years.

13. **A simple method of representing by diagrams different forms of ocular muscle imbalance.** Dr. L. HOWE.

14. **Congenital cataract observed in five members of the same family.** Dr. BURTON K. CHANCE.

The opacity was disk-like and situated in the lens between the nucleus and the cortex. The cases corresponded to those recently described by Nettleship and Ogilvie.

The paper appears in full on pp. 505-508 of this number.

15. **Concerning the vascular changes in the uveal tract, retina, and optic nerve in quinine blindness and in tobacco-alcohol amblyopia, and the lesions found in the eyes of a man who died from the effects of drinking methyl-alcohol.**

Dr. G. E. DE SCHWEINITZ.

Dr. DE SCHWEINITZ presented a paper the substance of which is described in the title. The object of the communication was to summarize briefly the literature pertaining to the vascular changes in the toxic amblyopias in so far as quinine, tobacco, and alcohol are concerned, to record a restudy of his sections of animals' (dogs') eyes blind from the effects of toxic doses of quinine, again to correct certain faulty interpretations published in the original report of the histology of these eyes, and to describe the microscopic findings in the eyes of a man dead from methyl-alcohol. Exclusive of the case of methyl-alcohol poisoning, the paper did not in any way concern itself with the influence of these toxic agents on the nerve tissues, *i. e.*, the retina and optic nerve, either in so far as these actions are well established or are still in dispute.

The following conclusions were reached:

1. The ophthalmoscopic evidence of retinal vascular disease in the sense of obliteration of the arteries and apparent conversion of their walls into white cords in long-standing quinine blindness, both in human beings or in animals has been confirmed by a number of observations, beginning with those of Horner and ending with those of Seeligsohn. At least one case is on record, namely, Parker's, in which thrombi were believed to have been seen in the inferior retinal vein as early as four days after the blindness.

2. One case (Seeligsohn's) is on record in which ophthalmoscopic evidence of disease of the choroidal vessels at a late stage of the poisoning, that is, three years after its commencement, was present, but there is no confirmation of such choroidal vessel disease in experimental quinine blindness, in which, however, no specimen has been examined longer than several months after the quinine blindness was induced, nor is there any experimental evidence to confirm the single clinical observation of atrophy of the iris as the result of a

toxic disease of the vessels under the influence of this drug made by Stölting.

3. In long-standing quinine blindness in animals, although the vessels of the optic nerve, of the choroid, and of the retina appeared slightly thickened, careful examination fails to confirm the presence of any true endo-vasculitis. There appears, however, in optic nerves of these cases to be an œdema with stretching either of the fibres of the walls of the central vein, or else of the loose connective tissue which encases it. No thrombus formation, however, takes place, and the original statement made by de Schweinitz that he believed in two specimens that such a lesion had occurred, is incorrect and was due to faulty interpretation of the phenomena observed.

4. In a number of eyes with tobacco-alcohol amblyopia, extensive vascular disease of the optic nerve in the form of thickening of the vessels, fibrosis of their walls and hyalin degeneration, as well as endo- and peri-phlebitis, have been described, notably by Sachs, Schieck, Sourdille, and de Schweinitz, but there is also satisfactory evidence that these alterations constitute the underlying basis of the disease.

5. In the case of human methyl-alcohol poisoning, while the Nissl stain showed beginning degeneration of the ganglion cells, such changes could not be positively referred to the action of the drug, inasmuch as the examination was made eleven hours after death, and therefore at a time when the post-mortem changes in the ganglion cells might have begun. No other changes in these eyes were discovered, except a layer of œdema surrounding the central artery and central vein of the optic nerve, which also could not be positively attributed to the action of the methyl-alcohol, because it resembles a similar œdema which has been noted between the septa and the nerve fibres as the result of an artefact.

Discussion: Dr. HOLDEN has had the opportunity of examining sections of the eyes after fatal methyl-alcohol poisoning. The optic nerves stained with hematoxylin-eosin exhibited no marked pathological changes and in the retinas stained by Nissl's method the post-mortem changes in the ganglion cells were so advanced that no conclusions could be

drawn as to pathological changes present. Unfortunately early autopsies are difficult to get in these cases.

16. **Changes in the optic nerve during pregnancy not dependent on nephritis.** Dr. ARNOLD KNAPP.

Three cases of neuritic atrophy were described occurring in pregnant women who exhibited symptoms of toxæmia of pregnancy to which they are brought in etiological relationship.

Discussion: Dr. POSEY had observed a case of neuro-retinitis with some extravasations in the retina in a pregnant woman who was supposed by the attending obstetrician to be suffering from the toxæmia of pregnancy. Premature labor was induced and the eye condition was recovered from.

17. **Changes in the fundus of the eye in cases of polycythemia.** Dr. EDWARD JACKSON.

This woman presented cyanosis of the lips and of the tongue with generally enlarged veins. There seemed to be no other vascular changes. There was no alteration in the arteries. The pathology of the condition was obscure. The veins were unusually tortuous. The blood was very dark and there were some retinal hemorrhages. Loss of vision was apparently due to the pressure of the enlarged veins.

Discussion: Dr. DE SCHWEINITZ spoke of the lack of ophthalmoscopic changes found in polycythemia which was a form of venous relaxation. He had observed two cases in which the ophthalmoscope showed the characteristic changes with indentation of the veins and the unusual dark color beside the tortuousness of the vessels. In one of these cases peripheral scotoma was present which was apparently due to some retinal change.

Dr. HOLDEN had observed a case which presented large, dark, tortuous veins without retinal hemorrhages and a central color scotoma presumably due to a tobacco-alcohol amblyopia. Upon general examination polycythemia was found present but the vision did not improve and he was not clear in his mind to which condition the central scotoma was to be ascribed.

18. **Case of intraocular tuberculosis which closely simu-**

lated glioma of the retina. By Dr. S. THEOBALD with pathological report by Dr. W. G. MCCALLUM.

Report of a case with demonstration of a specimen. The eyeball was filled with tuberculous tissue which perforated the sclera in the neighborhood of the internal rectus.

20. **Preliminary report of two cases, believed to be intraocular tuberculosis. Case No. 1. Tumor of choroid. Probably conglomerate tubercle. Case No. 2. Relapsing plastic choroiditis, probably tubercular.** Dr. COLMAN W. CUTLER.

The first case is that of a boy of seventeen. The trouble with the eye was noticed first, November 24, 1906, after sudden exertion. Four days later, the examination revealed, in the right eye, a large tumor-like mass, involving the lower half of the fundus, from a distance two nerve diameters below the papilla as far as could be seen towards the periphery, rising gradually to an elevation of eight to ten diopters. Surface smooth, color that of a normal fundus without any nodular appearance. No signs of choroiditis. Some œdema of the retina at the upper margin of the tumor. Transillumination and puncture demonstrated its solid nature.

Physical examination of the chest showed at the left apex slight retraction, diminished expansion, slight dulness, prolonged expiration. After three weeks in bed, signs of œdema had disappeared and vision had improved, but the ophthalmoscopic appearance of the mass was unchanged.

January 8th. 2 mg. Koch's T.R. were given without constitutional reaction, but the optic nerve seemed more hyperæmic and swollen and in the course of the next week, a number of small gray dots appeared near the edge of the tumor, posterior to the vessels, increasing in number and slightly in size, fading gradually, until, in course of the following week, they disappeared.

On January 31st, 5 mg. Koch's T.R. were given and a distinct constitutional reaction obtained, with a rise of temperature three degrees; the local reaction following after a delay of several days, during which the nerve was redder and there was slight œdema of the nerve fibres. This local reaction was repeated several times especially after the inoculations had been withheld for a month, and then resumed

and increased somewhat rapidly. The opsonic index was studied in relation to the tuberculin and the reactions and followed to a certain extent the clinical symptoms.

During the following two months the local reaction became less marked, indicating the tolerance to the tuberculin; the field of vision increased showing that function for form and white was retained over the greater part of the tumor while colored objects were only seen at 15 to 20 degrees above fixation point.

Along the upper margin of the tumor, there developed a series of striations which had no connection with the variable changes of the reaction and which seemed to indicate a connective tissue change in the retina or choroid at the margin of the tumor, somewhat similar to those described by Haab. At no time were there signs of reaction in the eye externally, and vitreous was always clear.

The second case is that of a young man aged 26, with a family history of tuberculosis. Six years previously, he had been treated for an attack of plastic choroiditis, which ran its course in about a month, under treatment with iodide of potassium in moderate doses. Tuberculosis was not suspected at that time.

On January 29, 1907, he reappeared with the history of hæmoptysis and blur in the same eye (left), which had been inflamed six years previously. Examination of the chest showed signs of pulmonary tuberculosis. There was in the eye a well-marked plastic choroiditis affecting the same region and in almost the same way as had been the case during the previous attack. The exudation covered a part of the optic nerve and appeared to its nasal side in several patches of more or less recent development like disseminated choroiditis. The periphery was free. Vitreous was filled with floating opacities. In spite of rest and tonics, the condition grew steadily worse until, under tuberculin in small doses, increased gradually, a gradual improvement was noted and in about two months, vision became normal and it was possible to see the partial atrophy of the choroid with serpiginous edges and with diffused, not intense, pigmentation covering the floor of the areas affected.

Discussion: Dr. N. B. POTTER said that the opsonic index

determination was not accurate enough to draw definite conclusions from.

Dr. DUANE said that he had had a patient with a solid mass in the lower part of the fundus lasting ten days where these white dots also appeared after each injection and persisted for four or five days.

Dr. GRUENING had had an opportunity of examining Dr. Cutler's first case with the ophthalmoscope and stated that he had never seen anything like the dots and parallel lines which were observed directly above the tumor.

Dr. VERHOEFF thought that we must distinguish between two types of tuberculosis: (1) the well-known type; (2) cases which were more or less mild in their manifestations but which react to the tuberculosis test. He thought this latter group had been particularly well demonstrated by Stock's experimental work and he thought that in episcleritis there probably was a latent focus in the ciliary body.

20. **Double perforation of the eyeball by metallic foreign bodies with report of cases.** Dr. W. M. SWEET.

Dr. SWEET reported 22 cases of "Double perforation of the eyeball by iron and steel," in 9 of which the foreign body lodged in the fundus, a portion of the metal protruding through the posterior scleral wall into the orbit, and in 13 cases the splinter passed completely through the eyeball into orbit. The position of the foreign body was determined in each instance by the Roentgen rays, and, as showing the accuracy of localization, in two of the cases of partial perforation the extent of the penetration of the metal through the posterior scleral wall as indicated by the X-rays corresponded to the measurements made from the enucleated eyeball. Absolute accuracy in diagrammatically indicating the position of the foreign body in reference to the posterior scleral wall in every case was shown to be impossible, because of variations in the normal adult eyeball, which may amount to as much as 5*mm* in the antero-posterior axis. Error of localization occurred in one of the cases reported, the radiographs placing the body in the choroid, whereas the metal was found after enucleation to have passed into orbit and rested close to the sclera, adjacent to the point indicated by

the X-rays. The size of the eyeball was not measured. Attention was called to the possible shrinkage and tugging of the exudative mass surrounding a splinter in the orbit close to the eyeball as a source of irritation to the ocular structures in injuries of this character.

21. **Double perforation of the eyeball by piece of metal.** Dr. W. E. LAMBERT.

A patient presented himself at the Infirmary a few hours after having been struck in the eye while chopping wood. On examination it was found that there was a small wound in the cornea and a corresponding tear in the pupillary margin of the iris.

The ophthalmoscope revealed a very slight hemorrhage and an air bubble in the vitreous; a rupture of the choroid in the median plane, temporal side. An X-ray was made by Dr. Dixon, and the foreign body located by him as being in the orbit, having perforated the posterior coat of the eyeball.

The Haab magnet was applied to the external canthus, the eyeball being rotated inwards as far as possible. Slight bulging was observed. An incision was made through the conjunctiva and Tenon's capsule. The large magnet was again applied and the foreign body withdrawn.

It was a very thin piece of steel about 1 x 2*mm.* Patient had 20/20 vision, which he retained up to six months after the accident, this being the last time he was seen. The eye at that time was perfectly quiet. I have heard from him since that time and his vision is still unimpaired, eye giving no trouble.

Dr. THEOBALD spoke of two cases in which the shot remained in the orbit just back of the eye and in which the eye gave no further trouble from the double perforation.

22. **Report of the extraction of a foreign body from the interior of the eye.** Dr. HIRAM WOODS.

This foreign body could be seen in the back of the eye with the ophthalmoscope. It was promptly dislodged with a large magnet and became caught in the iris, removed by a smaller magnet, which was followed by considerable hemorrhage. When this was cleared up it was found that the iris had been torn away from its attachment. The vision and

accommodation of the eye were normal. The foreign body measured 3 x 1*mm.*

Discussion: Dr. GRUENING drew attention to an important symptom in the cases where the foreign body remains located in the orbit, namely, exophthalmos, which usually comes on in 24 hours. He has seen this in three cases.

Dr. W. B. JOHNSON thought that a localization should precede every attempt at removal of a foreign body and regarded a subconjunctival hemorrhage as a symptom of double perforation.

23. **Interesting cases of eye-strain.** Dr. J. A. SPALDING.

24. **The position of the ophthalmologist in the treatment of diseases of the accessory sinuses.** Dr. W. C. POSEY.

After reporting upon a case of exophthalmos presenting a swelling in the upper and inner part of the orbit which had been examined by a rhinologist who had reported that the condition of the nose was normal and where an operation revealed an empyema of the frontal sinus, Dr. Posey entered a plea for more rhinological knowledge among ophthalmologists and thought that if an external operation was necessary this should be done by the ophthalmic surgeon.

Discussion: DR. GRUENING drew attention to the fact that operations on the frontal sinus had been first developed by ophthalmic surgeons.

Dr. H. T. SHERMAN spoke of the importance of a knowledge of rhinology in certain eye affections, quoting the statement of Jonathan Hutchinson that the nasal nerve was the trophic nerve of the eye.

25. **Pulsating exophthalmos. Ligation of carotid—death.** Dr. E. E. JACK. (Pathological report with specimen by Dr. VERHOEFF.)

This was a woman fifty-three years of age who after an injury to the temple developed a pulsating exophthalmos. The common carotid was ligated and the patient subsequently died after a number of weeks from œdema of the brain. The examination of the cavernous sinus showed the existence of an old aneurism of the carotid artery which had ruptured and caused the symptoms from which the patient suffered.

The pressure of the aneurism on the optic nerve caused an atrophy of the central bundle.

Dr. WILMER exhibited a **spectacle frame** which attempted to give an accurate determination of the axes and the branches of which permitted a moderate rotation of the frame.

26. **Removal of the lens in high myopia.** Dr. W. E. LAMBERT.

Case No. 1. Girl sixteen years old; myopia—O.D. 20 D., O.S. 18 D.; vision with this correction 20/70 each eye; very large posterior staphyloma in each eye; fundus otherwise in fairly good condition.

Both lenses were removed by Fukula method. The resulting vision was 20/30 + in each eye, with +1.50 cyl. axis horizontal.

Patient has binocular single vision and reads comfortably J. No. 1 with +3 in addition to above correction. She had been unable to continue her studies as stenographer and typewriter. but has, since the operation, completed her course, and is now employed in this capacity.

Case No. 2. Young woman, thirty years old; myopia estimated — O.D. — 22 D, O.S. — 20 D; vision with correction O.D. 20/200 O.S. 20/70; commencing changes in both lenses; extensive fundus changes in the right eye; slight in the left; large posterior staphyloma in both eyes.

The method adopted in this case was (as in the previous one) discission with linear extraction. In this case, however, three discissions were required in the right eye and four in the left eye before the conditions permitted of extraction, whereas in the first case, one discission in each eye was found sufficient, extraction being made two days after the first discission.

The resulting vision was O.D. 20/40 with −2 cyl., axis 90°; O.S. 20/30 with −1.50 +2.50 cyl., axis 165°.

The patient was bothered somewhat for a short time after the operation with diplopia, but has now binocular single vision and reads J. No. 1 at twelve inches with +3 added to the above correction.

REPORT OF THE SEVENTY-EIGHTH CONGRESS OF GERMAN SCIENTISTS AND PHYSICIANS AT STUTTGART, SEPTEMBER 16–21, 1906.

Translated from Vol. LVI., No. 2, of the German Edition, by Dr. PERCY FRIDENBERG.

SECTION 22: OPHTHALMOLOGY. REPORTER, DR. KAUFFMANN, CANNSTATT. FIRST SESSION, SEPTEMBER 17, 1906. CHAIRMAN, RAEHLMANN (WEIMAR).

SCHLEICH (Tuebingen): **Prognosis and treatment of simple glaucoma.**

Schleich reports his experiences in the Tuebingen clinic with operative and medicinal treatment of simple glaucoma, considering only such cases as were under observation for more than two years. Of the eyes treated by iridectomy, 30% showed an immediate and decided change for the worse in visual function as a result of the operation; 70% showed no such deterioration. Of the first series, 26% became blind immediately or very soon after operation; only 3% showed arrest of the disease. In 71% there was progressive diminution, more or less rapid, in vision, so that in this series there was nothing gained by operation.

Of the eyes which showed no change for the worse in vision, immediately after operation, 21% showed an arrest of the disease lasting for the time of observation—that is, two years or more; in 79%, however, there was further gradual loss of vision. Of all the cases (102) in which iridectomy was performed, 7.8% became blind immediately or soon after operation, 76.5% lost vision gradually, and only 15.7% remained at a standstill—that is, showed no further loss of sight for two years. These unfavorable statistics are not accounted for by any peculiarities in the course of the disease or in the operative

procedure, but only by the long period, amounting in some cases to 25 years, during which they were kept under observation. Medicinal treatment, which was carried out persistently and carefully by means of miotics in a much smaller series of cases (46), gave a comparatively better result, as 39% were brought to a stationary condition of vision, while 61% became worse. The statistical study of this question is rendered difficult by essential factors which cannot be eliminated. Haab's limit of two years as the lowest term for continued observation is purely arbitrary. The longer the cases are kept under observation, the more unfavorable the figures. No new data were acquired for a decided prognosis of treatment by operation or by miotics. It would appear that simple glaucoma developing at an early age is even more unfavorable for operation than that occurring in later life. The execution of the requirements of consistent treatment by medication after iridectomy or sclerotomy obscures our judgment of the effects of operative procedures. There is no doubt that the latter would appear still more unfavorable if treatment with miotics were not kept up. Up to the present time our experience with the operative treatment of simple glaucoma by means of iridectomy is not such as to allow us to place any reliance on the operation as a means of cure, as in the great majority of cases the procedure fails to produce the effect usually ascribed to it, and in a large proportion causes immediate and decided damage to the patient, besides causing rapid blindness in some cases. Consistent and persistent treatment with miotics has not yet been sufficiently tested, and unfavorable results are probably due to the patient's neglect in continuing to carry out the treatment.

Discussion: KOENIGSHOFER basing on long experience came to the conclusion several decades ago that iridectomy is a last resort, a forlorn hope, in simple glaucoma. He details cases which have been under treatment for many years with miotics and which have done well in every respect.

DISTLER does not agree with the general tendency to render an unfavorable prognosis in regard to operative treatment. He lays stress on the importance of a careful and accurate diagnosis. This cannot be made in every case as surely as we should like.

STOCK (Freiburg): (*a*) **Metastatic ophthalmia.** 1. Male, aged

twenty-eight. General sepsis following bed-sore in typhoid. Three days before death the right eye became involved, the left on the day of the death. There was metastatic retinitis in the right eye, and a similar condition, with foci in the iris, in the left. Streptococci were the cause of the infection.

2. Female, aged thirty-nine. Extirpation of cancer of the tongue. Fourteen days after operation there was a rise of temperature, and metastatic ophthalmia developed in the left eye. In the enucleated globe retinal metastasis due to streptococci was found.

3. Male, aged sixty-seven. Metastatic iritis following bronchitis, twenty days after extraction of cataract. Injection of pneumococcic serum increased the inflammation. The disease gradually healed.

4. Child, five weeks old, which had passed through a meningitis. Metastatic ophthalmia. Abscess of the vitreous which absorbed, after which the disease healed. The eye retained its form but was amaurotic.

5. Child of six months with septicæmic exanthema. Metastatic ophthalmia. Recovery. In Cases 4 and 5 the metastases were purely retinal.

Unilateral panophthalmitis does not render the prognosis of the constitutional affection any more grave, and infection of the vitreous does not necessarily lead to loss of the eye in every case. The metastases are located in the retina by predilection, as the capillaries are very narrow and the blood supply is less ample than in the choroid. In the latter membrane the resistent and defensive agencies of the organism can be brought into action more readily. In other metastatic infections, *e. g.*, tuberculosis, the predilection for the choroid is explained by the fact that large emboli cannot get into the retina, the central artery being given off at a right angle and the current sweeping the mass past it.

(*b*) **Peripheral corneal ectasia.** Male aged sixty-seven with protrusion of the upper periphery of the cornea. Enucleation for complicating serpent ulcer. The diseased cornea was found to be in a condition of cystic degeneration. The cyst wall was made up of sparse parenchyma, granulation tissue, and epithelium. The cyst communicated with the anterior chamber.

(*c*) **Conjunctival tuberculosis.** Girl, aged twelve. Clinical

aspect of phlyctenula. As this persisted, the "phlyctenula" was excised, and promptly recurred with severe symptoms. Miliary tuberculosis of the tarsus complicated the condition, leading to destruction of the cartilage, although the lid was preserved. Later on there were scleritis and iritis which were cured by injections of new tuberculin (T. r.).

(*d*). **Demonstration of specimens.**

1. Dacryocystitis complicating trachoma. The wall of the lachrymal sac contained innumerable beaker cells and follicles.

2. Small abscesses in the wall of the canaliculi.

Discussion: SCHIRMER agrees that peripheral ectasia depends on degenerative processes in the cornea. In one such case the entire anterior half of the cornea was wanting.

HELLER (Vienna): **Results of pædagogic exercises of vision in a case of retinitic atrophy.** Even in marked deterioration of vision, the remnants of sight can be trained and made more efficacious. He reports the case of a Russian girl of fourteen, without previous schooling, who at the time of her admission for retinal atrophy had very poor and indefinite vision. It was impossible to take the visual fields but they were very much contracted. After one year of training she was able to read Roman type of ordinary size as well as music, to write German and Russian, to draw, distinguish colors and dimensions, and to describe and localize objects. The gist of the treatment consists in promoting co-operation of the brain and eye as the patients are not actively conscious of the amount of vision still remaining. After the optical impressions have been translated into psychical processes by practice, each gain is a factor in the increase of receptivity. The effect of marked contrasts is made use of freely as a stimulus and starting-point for further development of vision. A brightly illuminated field in a darkened room is used, and colored glasses employed to encourage color perception. Later on, dark bodies on a bright surface, and *vice versa*, are used in daylight illumination. Varying size of the objects tends to develop judgment of dimensions. The ability to distinguish slight variations allows the pupil to pass on to comparison of visual impressions in memory or imagination. In this way abstraction and combination are developed. Accuracy and knowledge of intention are promoted by taking apart and putting together of combinations,

and drawing and writing taught by various graphic combinations of points. The definition of blindness is not the same in medical, pædagogical, and social circles. For the physician, blindness means the inability to perceive light; for the teacher, the inability to acquire the tuition necessary for the citizen; for social life, the inability to acquire knowledge or accomplishments. There remains a field in which physicians and teachers should co-operate by visual exercises.

WAGENMANN (Jena) then took the chair.

WEISS, JR. (Gmuend): **The metallophone.**

Weiss demonstrated an apparatus for the detection of metallic foreign bodies by measurement of electric resistance within the eye with alternating currents after Kohlrausch. A telephone is used as a galvanometer.

PRETORI (Reichenberg): 1. **Treatment of suppurative dacryocystitis.**

The sac is split according to Arlt's method, and a pencil of lunar caustic introduced. In case of a fistula being present, no operation is necessary. The sac is cast off by necrosis *in toto* and can be removed with forceps. The treatment is a compromise between radical surgical procedures and chemical destruction. It has the advantage of being applicable to ambulant patients, causing little pain and no interference with work. Thirty-five cases were treated by this method, and 31 were completely and permanently cured.

Discussion: STOCK, WAGENMANN, and SCHIRMER all prefer radical extirpation. The application of a caustic is always inexact, as we never know how deeply its action extends. In acute inflammation the reactive symptoms are to be treated by incision and packing and operation performed when the irritation has subsided. Pretori in closing states that his method is intended for the general practioner who has to work without assistants.

2. **Superficial keratitis.** PRETORI describes a peculiar form of corneal disease characterized by delicate dendritic grooves with raised borders ramifying upon the cornea. In 35 cases observed by him there were an initial chill and a local epidemic of influenza. The course is mild. Local treatment is symptomatic. Internal administration of quinine is beneficial. The bacillus of influenza is probably the specific micro-organism.

KOENIGSHOEFER (Stuttgart): **Demonstration of a phantom for the representation of the optical and muscular functions of the eye.**

SECOND SESSION, SEPTEMBER 18, 1906. CHAIRMAN, SCHLEICH (TUEBINGEN).

RAEHLMANN (Weimar): **Theory of color perception.**

Basing on the latest researches on static, retrogressive waves, Raehlmann presents a theory based on an anatomic and physiologic hypothesis. In the discussion FUCHS (Erlangen) opposes the theory, which is to be published in the ARCHIVES OF OPHTHALMOLOGY.

F. FRAENKEL (Chemnitz): **Localization and measurements by means of the X-ray.**

A rectangular spatial system of co-ordinates is connected with the skull, and the position of arbitrary points of the body surface, such as the centre of the cornea measured directly in relation to this system of co-ordinates. The position of the point to be determined (foreign body) is then calculated, the X-rays being considered as intersections of two planes the axes of which are parallel to the axes of the two ordinates, y and z. In a wooden frame, steel needles, each *1cm* long, are placed *1cm* apart, their points lying in parallel planes (Plane x=0. Plane x=1). The intersections of the imaginary projected plane with the xy- and xz- plane are determined for 2 radiographs. The points of the needles on the plate are connected by lines, and the projections of two co-ordinate networks obtained.

SCHIRMER (Greifswald) takes the chair.

FLEISCHER (Tuebingen): **Optic nerve disease and multiple sclerosis.**

The material of the Tuebingen clinic for the last 30 years includes 24 cases of acute retrobulbar neuritis, 7 males, 17 females, of whom 6 certainly, and 10 probably, had multiple sclerosis. In 11 cases the symptoms of this disease came on several years or more after the nerve affection, in 2 they preceded it, and in 2 they were simultaneous. About 25% were bilateral, and almost all regained fairly normal vision. In one case atrophy developed in one eye. Pallor of the nerve and slight veiling of the margin of the disk was uni-

formly noted. At the height of the disease there was invariably an absolute central scotoma with intact periphery. A ring scotoma was seen in only one case. Small relative scotomata may persist. Later on diminished perception of green may be found in the peripheral portion of the field. Of the 24 cases, 21 were 17–24 years old; only 3 were older. Cases of optic neuritis with decided ophthalmoscopic changes but without well determined etiology were also considered. In this series, which ran a course like that of retrobulbar neuritis, a more protracted course was often noted. Of 14 cases, 3 certainly had multiple sclerosis, and 2 probably; 3 died of brain sclerosis with dementia, and 2 of tuberculosis. Six remained well. Of 8 cases with atypical subacute course, 4 died; 2 with cerebral symptoms; 1 had some obscure neurosis; 1 had peaked skull; 1 was healthy. Of 14 cases of acute papillitis, 11 were under 30. Pallor and veiling of the margin of the disk developed later. Final vision was approximately normal except in one case, that of a tuberculous woman, where there was diffuse atrophy. This form of papillitis seems to be analogous with retrobulbar neuritis, as the disease affects the distal portions of the nerve. In proof of this the case is cited of a young girl who in February, '06, had retrobulbar neuritis of one eye without ophthalmoscopic changes, and a few days ago papillitis in the other eye with absolute central scotoma. Meanwhile typical symptoms of multiple sclerosis had developed. Of 39 cases of multiple sclerosis from the medical clinic, 13 showed pallor of the disks, 10 had more or less veiled or opaque nerve-heads. In the remaining cases of optic-nerve disease (chronic optic neuritis, neuritis and simple atrophy, choked disk, hemianopsia), no relation to multiple sclerosis could be determined, but in acute affections of the optic nerve occurring in youthful individuals with rapid recovery, multiple sclerosis is the probable etiological factor in case of doubt.

DISTLER (Stuttgart) saw 6 cases, of a series of 30 with intraocular neuritis, after a lapse of time, and all 6 had multiple sclerosis.

HARMS (Tuebingen) calls attention to the fact that multiple sclerosis is the most frequent nervous affection in Wuerttemberg, and that in Tuebingen it is possible to keep the cases under observation. This accounts for the statistical peculiarities.

HARMS (Tuebingen): 1. **Case of bi-temporal hemianopsia.**

Harms presented a man of eighteen with bi-temporal hemianopsia, gigantism, and indications of acromegaly.

Discussion: MAYER (Breslau) asks if the thyroid gland is present. In a similar case he found myxœdema with vicarious hypertrophy of the hypophysis and absence of the thyroid gland.

SCHWARZ (Leipsic) asks as to hemianopic pupillary reaction.

HARMS, in closing, states that the X-rays showed an excavation of the sella turcica. Hemianopic reaction was found on the right side only. The thyroid was not atrophied.

2. **Demonstration of a patient with plastic exudative choroiditis** (Schieck).

The patient reacted to old tuberculin, and was improved by treatment with tuberculin recens.

THIRD SESSION. SEPTEMBER 19, 1906 (IN CONJUNCTION WITH THE DERMATOLOGICAL SECTION). CHAIRMAN, KRAILSHEIMER (STUTTGART).

DARIER (Paris): **The teeth in heredito-specific disease.**

The deformity of the incisors and canine teeth is well known since Hutchinson, but it is not known that the molars too—that is, the first 4 permanent molars—are similarly affected by syphilis. In these teeth, too, the enamel is not evenly distributed over the biting surface. The insufficiently protected dentine grows irregularly and the 4 tubercles, which ordinarily become rounded off, smooth, and white, become pointed, nodular, and yellowish. Caries develops rapidly. These molars form enamel at the same period of embryonic development as the canines and incisors. When irruption of the molars takes place at about the seventh year, this anomaly can be seen, but it is soon obscured by the rapidly developing caries.

REPORT OF MEETINGS OF THE OPHTHALMOLOGICAL SECTION OF THE NEW YORK ACADEMY OF MEDICINE.

By Dr. H. W. WOOTTON, Secretary.

MONDAY, FEBRUARY 18, 1907. PRESIDENT, DR. J. H. CLAIBORNE, IN THE CHAIR.

Dr. R. Denig presented a **capsulotome** to remove a part of the anterior capsule in cataract extraction. When closed, it looked like a keratome; when open, it showed two blades—an anterior and a posterior with ridges on the inner side of each.

(The full description of this instrument will be found in the *Ophthalmic Record*.)

Dr. E. B. Coburn thought that, in opening this instrument in the anterior chamber, the point of the anterior blade would be liable to stick into the cornea and that, in using the instrument on a sclerosed lens, the effort required to push the posterior blade into the capsule and lens might produce a dislocation of the latter. Also, that in attempting to remove a thickened capsule, the withdrawal of the instrument with the capsule would also draw the lens with it.

Dr. E. B. Coburn presented a patient with **paralysis of the sphincter iridis by contrecoup.**

A girl, aged nine, fell down three flights of stairs, striking on the left side of the head. There were severe nose-bleed and a cut on the left temple requiring several sutures, but the child was able to get up alone, and complained of no pain or headache. Two "black eyes" subsequently developed; five days later, she complained that the sight of the right eye was blurred and there was some pain in the eye or orbit. When examined two days later, the right pupil was semi-dilated but responded

slightly to light, convergence, and consensual test. Vision normal in each eye, and there is no paralysis of accommodation. The pupillary margin of the iris was not notched. The fundus was normal and tension also. The nose seemed slightly broadened, but there was no crepitus and there was no evidence externally or internally of fracture. The patient had had no recent illness and no eyedrops of any kind had been used. There were no evidences of traumatic hysteria.

Dr. J. H. CLAIBORNE presented a patient with **iritis and adhesions in a child of three and one-half years.**

The child had always been well and the eyes had been normal until last May; then they became inflamed and were treated at a dispensary and became better. Dr. Claiborne first saw the patient about one month ago and the pupils were bound down and there was a small old exudation in the pupillary apertures. Atropin had no effect. There was slight circumcorneal injection; tension normal; had sufficient vision to enable it to pick up objects from the floor. Family history of father and mother good. Atropin was stopped and the circumcorneal injection returned. Surgical interference is refused for the present.

In the discussion of this case Dr. W. E. LAMBERT thought that an iridectomy was indicated and that the iridectomy would probably stop the process.

Dr. E. S. THOMSON had seen such a case in a child of four years. The irides were very much degenerated and the case had all the appearance of an advanced iritis with the iris extensively bound down. In one eye atropin broke up the adhesions; in the other an iridectomy was made with good results.

Dr. J. E. WEEKS had seen one case younger. An iridectomy was made in one eye. In Dr. Claiborne's case iris bombé was present in one eye, and when this condition existed iridectomy should be at once performed, but when not present, the iridectomy should be delayed if the tension was normal.

Dr. F. N. LEWIS thought it better to wait before performing iridectomy if the inflammatory conditions were evidently subsiding. In these cases in children operation was not followed, as a rule, by as much reaction as in adults.

In Dr. Claiborne's case if the inflammatory symptoms soon disappeared iridectomy was indicated.

Dr. F. VALK thought the quicker iridectomy was done the

better, the presence or absence of inflammation making no difference. Improvement of vision was not likely, unless the lens was eventually removed, for it would probably be found to be more or less opaque.

Dr. H. KNAPP advised leaving the case alone until after the subsidence of the inflammatory symptoms, when discission without iridectomy would be performed.

Dr. W. E. LAMBERT believed that the inflammation would persist until the iridectomy was done. There were exclusion of the pupils and extensive adhesions, and irritation would persist until relief was effected by the iridectomy.

Dr. E. B. COBURN thought that thiosinomin and dionin might be tried.

Dr. J. E. WEEKS stated that many patients did not bear thiosinomin well.

Dr. E. L. OATMAN presented a **patient in whom corneal fistula of many years' duration was successfully closed by a conjunctival flap.**

Dr. E. L. OATMAN presented **two cases, a brother and a sister, both of whom were affected with a progressive atrophy of the retina, commencing at the macula and gradually spreading towards the periphery.**

Father died at the age of 44 years; he suffered from epileptiform seizures. During the last year of his life his vision was very defective. Father's brother is living; aged 44 years. His vision commenced to fail at the age of 30. At the present time he is nearly blind. An ophthalmoscopic examination of his eyes had not been secured. The mother is in good health and possesses normal eyes. She has had three children, now aged, respectively, 8, 10, and 12 years. She has never miscarried. The elder and younger of the children were the patients presented to the Section. The other child, a girl, is healthy and has normal eyes. An uncle of the mother was born blind. No history of consanguinity in the family marriages.

Case 1. Girl, brunette, twelve years, attended school and learned to read. Failure of vision was first observed when seven years of age. At nine epilepsy developed. At present she has only peripheral vision. The right field shows absolute central scotoma of about 10°. Left field scotoma covers 40° to 50°. No central perception of light. Good peripheral

vision and color perception. No torpor retinæ. Pupillary reactions normal. Urine normal. She is well nourished and exhibits no evidence of syphilis or other constitutional diseases. The ophthalmoscopic picture is indicative of retinal atrophy. Nerve is white. Central retinal vessels narrowed, particularly the arteries. Retinal pigment is scanty, the choroidal vessel being exposed throughout the fundus. Changes most marked at macula, which shows scattered pigment deposits in the retina. Sclera not exposed. Choroidal pigment not disturbed.

Case 2. Boy, light complexion, aged eight. Physical examination revealed nothing abnormal. First noticed failure of vision about two years ago. Probably it commenced before this as he has not learned to read although attending school. Vision: O.D. = $\frac{8}{200}$; O.S. = $\frac{10}{200}$. Color perception for large objects is good. No torpor retinæ. Ophthalmoscopic changes are confined to nerve and macular region. The nerves are white and the central vessels narrowed. In both eyes the foveas are surrounded by a pigmented ring.

It is difficult to classify these cases, but pathologically they approximate retinitis pigmentosa in that the condition probably originates in the chorio-capillaris which nourishes the outer layers of the retina. Consequently disease of the chorio-capillaris is followed by atrophy of the retina from mal-nutrition. The remarkable feature which differentiates these cases from retinitis pigmentosa is the inverted progress of the disease. The retinal atrophies commonly met with proceed from the periphery to the centre, while in the cases presented it commences centrally and extends to the periphery.

In the discussion which ensued Dr. E. L. Oatman remarked that he had been impressed by the similarity between senile changes and those observed in this and other forms of family retinal diseases which appear in childhood or early adult life. It had occurred to him that possibly such diseases may consist of a local premature senility, the life period of the retina being shorter than that of other organs in the same body.

In Dr. E. L. Oatman's case of corneal fistula, Dr. WEEKS believed that the result would be permanent as it had been in a case of his own which he had already reported.

Dr. Weeks had abraded the cornea corresponding to the

position of the flap as well as the cornea immediately surrounding the fistula.

In regard to Dr. E. L. Oatman's cases of progressive atrophy of the retina, he thought that the nerve in one case had much the appearance of that seen in retinitis pigmentosa. Diseases of the chorio-capillaris produced changes in the retina which were fairly characteristic, and the chorio-capillaris was probably involved in these cases. The part played by heredity as the causative factor in retinitis pigmentosa and in certain forms of optic atrophy was, of course, well known. Dr. Oatman's cases were cases of atrophy of the choroid and retina of the same character as retinitis pigmentosa but commencing at the centre instead of at the periphery.

Dr. E. S. THOMSON read a paper entitled **The preparation of the patient and the antiseptic precautions to be employed preceding the extraction of cataract.**

The important points to be considered were: 1st, the general preparation of the patient; 2d, the preparation of the field of operation; and 3d, the preparation of the operator and of the instruments to be used.

It may be stated in general that any patient undergoing an operation for cataract should be in his normal state of health, and the cardio-vascular system, the kidneys, the respiratory apparatus, the nervous system, toxic influences, the digestive tract, and the possible presence of diabetes should be investigated. The state of the heart and vessels concerns us most on account of the dreaded complication of choroidal hemorrhages. It is hardly conceivable that, unless following some accident, as post-operative vomiting, loss of vitreous, or compression of the eye-ball, we should have rupture of a choroidal vessel unless some degree of degeneration of the vessel wall is present, and therefore evidences of arterio-sclerosis should be carefully noted, with the degree of vascular tension present. The presence of an old chronic nephritis should cause us to look very carefully for arterio-sclerosis. If arterial tension be high, the patient should be put on a careful diet for some days before the operation; but the use of drugs to lower the arterial tension had been very unsatisfactory. In Dr. Thomson's experience, it was better to operate upon these patients in the bed in which they were to remain. Urinalysis should always be made before cataract extraction.

In regard to respiratory system, an attack of acute bronchitis was of course an indication for postponement, but chronic bronchitis could be treated with sedatives. Asthma required the same treatment. The preparation of the nervous system is a difficult matter and one much less under our control. Encouragement and moral suasion were the best means at our disposal. The presence of syphilis was an indication for the administration of mercurials, preferably by inunctions, for several days prior to the operation, in order to avoid the severe secondary iritis that such patients are likely to develop. The alcoholic habit was a severe handicap to a successful operation, and bromides, strychnin, etc., and the absolute withdrawal of all alcoholic beverages were indicated. This treatment should be continued for several days after the patient seems fit for operation. The digestive tract required preparation by diet and a cathartic administered the night before the operation. Diabetes was not a contra-indication but was certainly a disadvantage on account of the tendency to secondary iritis which had been very generally recognized. He always waited until the percentage of sugar was lowest.

In regard to the preparation of the field of operation, it probably could not be sterilized as thoroughly as other parts of the body; it was impossible to completely sterilize the conjunctiva. At the same time infection following cataract extraction was no longer a "burning question." It was very unusual with operators of good technique and careful methods of asepsis. The brow and skin of the lids should be well washed with Castile soap and well rubbed with a cotton pledget, after which they should be flooded with a solution of bichloride of mercury 1:5000. Dr. Thomson did not shave the brow or trim the lashes but washed them carefully. The cocainized conjunctiva and cornea should be flooded with a 1:5000 bichloride solution and the cul-de-sac washed out with a pipette. Dr. Thomson thought that the solution of bichloride had more effect through mechanically floating away whatever germs might be present than it had in killing them. Acting on this principle the cul-de-sac was carefully wiped out with a cotton swab or applicator to remove any mucus that might be there and any bacteria that might be in it. Sterile towels are placed upon the patient's chest and around his head, which had been previously fitted

with a rubber cap, and a dry towel was loosely arched over the patient's mouth. Dr. Thomson has given up bandaging the eye for 24 hours previous to the operation, for he believes that bandaging not infrequently starts up secretion, probably by increasing the activity of the mucous formation and by dilating the conjunctival vessels through the warmth of the dressing. The tears also were incapable of mechanically flooding a bandaged eye. He did not see the wisdom in the eye-bath which some operators used before the operation. Of course, if we had blepharitis, conjunctivitis, or dacryocystitis, the question was a very different one and treatment should be energetic and constant until the condition subsided.

Any muco-pus in the lachrymal sac might be fatal to the success of the operation, but the dangers of clear mucus or a very low grade of catarrhal secretion were perhaps not so well appreciated as they should be; he regarded any abnormal secretion as dangerous, and his preference in cases that did not completely clear up under probing, irrigation, etc., was for sealing up the canaliculi with the actual cautery, or complete extirpation of the sac before extraction was attempted.

In regard to the preparation of the operator and instruments, Dr. Thomson stated that infection probably took place more frequently from bacteria introduced by the operator than from the mild germs which were found so frequently in the normal cul-de-sac. Ordinary instruments he immersed in boiling water ten minutes and cutting instruments were dipped into boiling water by hand, carefully wiped with sterilized cotton, then placed on a sterile towel and covered with another towel until they were needed. This should all be done immediately before the operation. He believed in the use of a sterile operating gown and scrubbed his arms and hands well with green soap, being especially careful in regard to the nails, and immersed his arms to the elbow in a 1:5000 bichloride solution. The hair of the operator should always be protected by a towel. The use of the mouth protector seemed somewhat extreme.

In the discussion which followed Dr. J. E. WEEKS referred to the diabetic cases; he had recently seen one with 2.2% of sugar. The amount of acidosis had not been determined. The case was operated upon. On the 4th or 5th day there were drowsiness and some abdominal distension, and the patient died. The

operation had been satisfactorily performed. In another case with 8.2% of sugar and some acetone in a patient seventy-three years of age, diet and bicarbonate of soda were resorted to and in a few days the amount of sugar was down to 1.5% and the acidosis much diminished. Operation was followed by good result. The patient had been kept upon bicarbonate of soda; he would not ordinarily operate with so much sugar, but the patient had been very anxious that operation should be performed. The first case mentioned was the only bad result he had seen in operating on a diabetic patient, but the acidosis should always be determined. In regard to bacteria, the different varieties present in the conjunctiva might be determined before the operation. If the bacteria were pyogenic or pathogenic he tried to free the conjunctiva from them as much as possible before operating. A small number of pseudo-diphtheritic bacilli was not detrimental. If many were present he irrigated the eyes with 1:5000 bichloride solution three or four times a day. Bandaging the eyes before operation was not good practice. Treatment for a few days, as described, was all that was necessary. Dacryocystitis should be cured before extraction; he would not operate on a case which showed the diplobacillus of Morax-Axenfeld for fear of corneal ulceration. If only a little mucus could be squeezed out of the sac he applied a little bichloride vaseline to the inner canthus immediately after operation

Dr. W. E. LAMBERT stated that in a case in which pseudo-diphtheritic bacilli were found he had treated the case with argyrol, with an increase of this bacteria and of pus cells. Bichloride of mercury was then used and the case cleared up. He never had occasion to extirpate the sac previous to a cataract extraction.

Dr. M. L. FOSTER thought that argyrol was of no special value in these cases; bichloride of mercury vaseline produced much better results.

Dr. H. KNAPP stated that when a considerable quantity of sugar was present in the urine it was better to wait until the quantity had diminished.

Dr. E. B. COBURN stated that he thought in diabetes the use of codein was beneficial, combined with the use of bicarbonate of soda. Bichloride of mercury in a solution of 1:5000 used

in the conjunctival sac for a short period of time killed no germs. Argyrol, unless freshly made within the twenty-four hours preceding, was useless as a bactericide and was actually an irritant according to the genito-urinary surgeons. He sterilized the knives with pure lysol from six to twenty-four hours, removing excess of lysol with absolute alcohol.

Dr. E. L. OATMAN did not like to operate on diabetic cases as the operation was apt to cause cysts of the ciliary body, but perhaps these cysts did no harm.

Dr. F. N. LEWIS did not believe in giving a cathartic previous to the operation unless there was a history of constipation; he laid great stress upon the importance of thoroughly cleansing the lid margins. He had used bichloride of mercury for irrigation but felt that boracic acid washed away superfluous secretion just as well and was not as irritating. He did not believe in bandaging the eye before operation.

Dr. A. N. ALLING had never seen any ill effects from operating on a diabetic patient.

Dr. H. KNAPP stated that, after cataract extraction, the infection came more from the conjunctiva than from the knife of the operator.

Dr. J. E. GILES thought that infection rarely occurred nowadays from the instruments, but we should make sure that no dacryocystitis was present and should treat any cases of conjunctivitis.

Dr. J. E. WEEKS thought that argyrol was of service in the conjunctiva. The clinical effects of drugs frequently differed from the results obtained in the laboratory.

Dr. W. E. LAMBERT stated that clinically he considered argyrol a very valuable remedy.

Dr. J. H. CLAIBORNE thought the size of the section was of the greatest importance; a small, irregular section was very dangerous, was liable to lead to infection, and was one of the worst faults of poor operating.

Dr. E. S. THOMSON, in closing, stated that, in his opinion, without long tedious culture experiments we could not learn much from the bacteriological examination previous to operation, in cases that presented a normal appearance. Of course if a smear was found full of germs the case was different. Argyrol *per se* was not a germicide, but its action upon germs

of the conjunctiva was doubtless different from its action in the laboratory.

MONDAY, MARCH 18, 1907. PRESIDENT, DR. J. H. CLAIBORNE, IN THE CHAIR.

Dr. M. L. FOSTER presented a patient who had been **struck in the eye last August with a piece of steel.** The radiograph showed the piece of steel had passed through the globe. The case was treated expectantly with atropin, etc. The traumatic cataract was absorbed and did not require needling; vision was $\frac{20}{20}$ – W. +10 sp.⌒+3 cyl. axis 45°.

Dr. J. H. CLAIBORNE presented a photograph and slide in a case of **unusual tumor of inner canthus.**

The history of the case is as follows: Two months previously a small red spot appeared in the inner corner of the left eye, not preceded by any injury, and had grown steadily ever since. No pain. The tumor presented the size and appearance of a ripe mulberry, springing from the cutaneous surface just below the mucous membrane between the lower punctum and the wall of the nose. Tumor was reddish, corrugated, and bled easily. Father and mother of the patient perfectly healthy. Vision normal with correction of a slight error. Diagnosis—angio-sarcoma. Tumor was removed by scissors, and one-half hour's time was consumed in checking the hemorrhage. The tumor continued to grow. Finally, under ether, it was destroyed with the actual cautery.

Dr. PERCY FRIDENBERG presented a young man of nineteen with **retinal striæ accompanying flat detachment of the retina** in the right eye. He was first seen about three months previously, and complained of a sudden diminution of vision without evident cause. V, O. D. $\frac{20}{100}$, unimproved. Field limited below. Ophthalmoscopic examination revealed a peripheral, flat detachment far upward. There was no gray discoloration. A few whitish lines could be seen beneath this area, and leading from it straight to the upper nasal margin of the disk a sub-retinal striation was seen. The long narrow rectilinear white strand lay beneath the retinal vessels. The macular region could be seen clearly with a +.50 D. At a short distance from the peripheral detachment, a short pigmented streak was seen running parallel with the white striation. It

had the appearance of an angioid streak. The other eye was normal. The patient was treated with iodide of potash and a pressure bandage applied intermittently. About four weeks later, examination showed a second striation, parallel with the first, originating in the angioid streak mentioned above, and running off at a level with the disk to the periphery on the nasal side, where it ended in a fresh detachment covering a network of whitish lines. The disk now appeared blurred. The detached area gradually neared the centre of the fundus, and sight became steadily worse. Several authors, notably Praun, Caspar, and Leber, consider these striations as a final stage of traumatic detachment, gluing the retina down and so producing a cure. In the present case the progress of the detachment coincided with the appearance of a fresh striation. It is to be noted that there was no myopia, no history of injury, excessive exertion, or syphilis, and that the patient is apparently perfectly healthy. The urine has been examined repeatedly and was always found to be normal. The detachment is now complete but quite flat. There is no loss of fundus reflex with grayish opacity except at the extreme periphery.

Dr. J. E. WEEKS stated that he had seen one case similar to that of Dr. Fridenberg's in which the striations seemed to be the result of a re-attachment of the retina. He thought that in other cases striations might be formed during the period of retinal detachment.

Dr. E. L. OATMAN stated that a partial detachment would produce the striæ by wrinkling.

Dr. FRIDENBERG stated that in his case there had been no re-attachment of the detached retina.

Dr. B. ONUF read a paper entitled **spasm of the binocular apparatus of fixation and superinduced blepharospasm.**

The paper reported the history of a girl three years of age with hysterical stigmata. Contraction of the visual fields, analgesias, and thermo-hypæsthesias of a regional character. Refractive error consisted of myopic astigmatism of both eyes, combined in one eye with slight myopia. A spasm of the apparatus of binocular fixation developed, manifested by convergent squint, contraction of the pupils, and spasm of accommodation. In addition there was marked blepharospasm. Dr. Onuf considered the latter to be grafted on the spasm of

the apparatus of fixation, through the habitual contraction of the pupil which formed part of this spasm. The habitual smallness of the pupil made the retina over-sensitive to light. When in the course of the disease the wearing of glasses correcting the refractive error had led to a subsidence of the spasm of fixation and with it to a dilatation of the pupil, the increased influx of light thus resulting gave rise to an exaggerated form of the reaction normally following such increased exposure of the retina to light, namely to blepharospasm. The case illustrated how, in an hysterical patient, a group of physiological functions, normally under conscious control, may, by habit, hypertrophy, and so detach itself from conscious guidance as to form almost an automatism of its own.

Dr. Onuf found only one case in literature presenting the same combination of symptoms, and in this case the distribution and development of the symptoms were different. Therapeutically, Dr Onuf dwelt upon the importance of a gradual restoration of normal conditions and gradual adaptation by means of the use of dark glasses aided by atropinization, the dark glasses to be occasionally replaced by less dark ones and, at a given stage, to be followed by gradual diminution of the atropin.

Dr. F. VALK considered that in Dr. Onuf s case the spasm of the accommodation was tonic, that all the symptoms might be accounted for by considering the case one of hypermetropic astigmatism with tonic spasm. The myopia might be also referable to the spasm, as indeed might the hysterical symptoms.

The subject of the **method of extraction of senile cataract** followed, Dr. E. B. COBURN reading a paper setting forth the merits of the simple operation, and Dr. J. H. WOODWARD reading one setting forth the advantages of the combined extraction.

An abstract of Dr. Coburn's paper is as follows:

The steps of the simple operation were described: 1. Introduction of speculum. 2. Section of cornea. 3. Capsulotomy. 4. Extrusion of lens. 5. Toilet of wound which includes the removal of cortical lens substance and replacement of the prolapsed iris (if it occurs). 6. Removal of speculum. Dr. Coburn stated that every step, including the use of the speculum, was debatable and that the results may vary according to the judgment of the operator in performing the different steps of

the operation. Thus the section of the cornea might be variously placed and might or might not include a flap of conjunctiva. Various modes of opening the capsule are in vogue and the lens might be expressed in different ways. The amount of effort made to remove cortical débris and replace the iris might be a potent factor in the result. The speculum might be removed after the capsule was opened and the lens delivered, or the speculum might be dispensed with entirely. Having in mind the variations possible, the advantages of the simple extraction were stated to be as follows:

1. There is no unnecessary traumatism to the eye, *i.e.*, only such procedures are employed as are absolutely necessary to remove the lens. The burden of proof lies with those who advocate anything more than is strictly essential to the end in view.

2. A minimum of mutilation means a minimum of danger of infection.

3. The number of instruments required for this operation is the smallest number possible for removal of the lens. Ordinarily only two instruments are introduced into the eye—the Graefe knife and cystotome. This may be reduced to one if the capsule is incised during the passage of the knife through the anterior chamber. In some cases a spatula is necessary to reduce the primary prolapse of the iris.

4. The fewer the number of instruments introduced into the eye the less is the liability of infection.

5. The anterior chamber is free from blood, and the various steps of the operation are clearly visible.

6. The iris protects the wound from tags of capsule and particles of lens matter; hence these are less liable to get into the wound and cause delayed union, or by their presence act as foreign bodies and excite irritation. Infection, glaucoma, sympathetic ophthalmia, iridocyclitis, and cystoid scar may result from this incarceration.

7. The iris serves as a curtain to prevent prolapse of vitreous.

8. Simple extraction takes the shortest possible time in removing the lens. Brevity of time means less exposure of the eye to pyogenic infection.

9. No assistants are required to perform simple extraction. The danger of infection is thereby diminished and there is no

fear of prolapse of vitreous from undue pressure by unskilful assistants.

10. Convalescence is shorter by virtue of less traumatism.

11. The iris responds to stimulus and serves its purpose as a diaphragm in an optical sense.

12. Visual results are better. When the pupil is round spherical aberration of the periphery of the cornea and of the correcting lens is cut off.

13. Some writers claim that the field of projection is better with a circular pupil.

14. Better vision and better projection mean less confusion and together afford greater safety to the patient.

15. Cosmetic reason. The result is ideal. The pupil is round and central and the eye presents a normal appearance. Sensitive persons do not, therefore, suffer by exciting remark and attention.

16. It is the easiest method of extraction.

In concluding, Dr. Coburn stated that, quoting Dr. H. Knapp, simple extraction is not only the best, but also the safest for senile cataracts and many other cataracts.

Dr. Woodward on stating the advantages of the combined operation, called attention to the following points:

1. There was less danger of prolapse of the vitreous.

2. There was less danger of dislocation of the lens into the vitreous.

3. There was less danger of revolution of the lens in its horizontal axis.

4. There was no danger from prolapse of the iris.

In the matter of technique, therefore, each operation presents notable advantages over its rival, and they are to this extent pretty evenly balanced.

Prolapse of the vitreous was an accident to be avoided with every care. For, even though the loss of vitreous may amount to but a drop or two, and even though the wound may heal and the eye be useful again, in the greater number of cases in which vitreous had been lost, the day will come when the baneful effects of that loss will be manifest in depreciation of vision or actual blindness. Dr. Woodward did not contend that there was absolutely no exception to this rule, but he stated most positively that prolapse of vitreous is a disaster, and whenever

he chose to perform a simple extraction, he was conscious of exposing the patient to the risks of that accident to a greater degree than if he had chosen to perform the combined operation. He called attention to the performance of the simple operation with the cataract knife alone, as recommended and performed by Trousseau some twelve or fourteen years ago, and he thought in the simple extraction that this method of operation, by eliminating the speculum and fixation forceps, gave a great security against prolapse of the vitreous. Prolapse of the vitreous was more likely to occur in the simple operation, because the lens is less readily delivered through the round pupil than through the keyhole pupil. Preliminary atropinization does not modify this statement. Prolapse of the iris occurring during simple extraction is not uncommon. Primary prolapse may be easily reduced, as a rule, leaving a round, central pupil. It may be queried, however, whether a large prolapse, although perfectly replaced, was not likely to be succeeded by a secondary prolapse in the early post-operative days. It seemed to him that such was the fact, and he preferred to excise a large prolapse of the iris at once, rather than persist in a determination to complete a simple operation. The combined operation, on the other hand was more difficult to perform well than was the simple, and it consumed a longer time. Both of these considerations might be important, according to the temperament of the surgeon and the peculiarities of the patient. From the standpoint of healing there was practically nothing to choose between the two operations. The chances of infection were intrinsically somewhat greater in the combined extraction, but the operations might be equalized in this respect by sufficient attention to asepsis. He would not contend that iritis was more likely to occur in one case than in the other, but, when it does supervene after the simple operation, posterior synechia and occlusion of the pupil are more seriously threatened.

In regard to secondary prolapse of the iris, sometimes the causes of it were clearly defined. In other instances they were more or less theoretical and uncertain. We might have our fixed ideas on this subject, but often we were not able to demonstrate that they were true.

After all had been said, the fact remains that no operator is wise enough, no matter how many thousand simple extractions

he may have completed, to say with authority that in one case there will be no prolapse of the iris, while in another a prolapse will occur. No method yet devised will insure against occurrence of prolapse of the iris in an important percentage of simple extractions, before the healing of the corneal wound can prevent it. Therefore the contention will hold, that, so far as the prescience of the surgeon goes, the occurrence of prolapse of the iris after simple extraction is more or less a matter of chance. Post-operative prolapse, occurring in the simple operation, subjects the patient to one or more operations for which he was not prepared, and the most brilliant results in these cases was very rarely, if ever, as good as would have been obtained with great certainty had the combined operation been performed in the beginning. In regard to the ultimate functional results he had not been able to detect any essential difference between the two methods. In regard to the physical appearance of the patient's eye there was a wide difference. The operation coloboma resulting from the iridectomy was disfiguring. The appearance of the eye after a successful simple extraction left nothing to be desired, and this argument in favor of simple extraction appealed to him most strongly. There were of course cases in which, to obtain such perfection, it were well worth while to take large risks, but excepting in a limited number of special cases, yielding to such temptation was done not really in behalf of the true interests of the patient, but as a sacrifice to the enthusiasm of the operating surgeon.

The simple extraction should be rejected when we were dealing with hypermature senile cataract. The cortex of such lenses is often as sticky as glue and, after the delivery, there remains in the posterior chamber a quantity of sticky débris which is removed with the greatest difficulty. In any case, it is very hazardous to leave such débris in the posterior chamber, for it seems to possess extraordinarily irritating properties. Massage, spooning, and irrigation of the posterior chamber through the round pupil, did not offer in his mind sufficient guaranty against disaster from such cortical remains.

Dr. E. GRUENING thought that, when trained assistants could be obtained, the simple extraction was, as a rule, preferable. He had seen the operation with the Graefe knife alone per-

formed in twelve cases; in three, prolapse of vitreous had resulted. As a method for all cases, he was not impressed with it, though of the final results he could not speak. Cases of hypermature cataract were especially suitable for the simple extraction. He was convinced that a patient was better with a round pupil, and that healing was shorter by the simple method than by the combined. To avoid prolapse of the iris he instilled a 10% solution of cocain into the eye in order to produce a condition of hypotony which lasted several hours. In irritable or unruly patients he always performed an iridectomy.

Dr. DAVID WEBSTER stated that an iris prolapse, occurring after the iris had once been replaced, usually necessitated iridectomy as soon as the prolapse was found, but these secondary iridectomies were very unpleasant for the patient and for the operator, and for this reason, during the past two years, he had performed more combined than simple operations. The secondary prolapses were due more often to the hyper-accumulation and subsequent expulsion of aqueous than to any act of the patient himself. He had recently performed some preliminary iridectomies, and had been very well satisfied with this method of operating. He did not think that the simple method gave any better vision than the combined.

Dr. J. R. SHANNON preferred simple extraction, other things being equal. He thought that vision was just about as good by one method as by the other, and the rapidity of recovery in uncomplicated cases about the same.

Dr. C. KOLLER thought that we were gradually doing more and more combined operations, and this might be due to the fact that more and more immature cataracts were operated upon than formerly. Prolapse of the capsule took place in many cases of combined extraction in spite of the most perfect toilet of the wound. As a result of this, the wound frequently remained red and injected for a long time, and many cases of insidious cyclitis thus originated, and he had even seen sympathetic ophthalmia follow.

Dr. J. E. WEEKS thought that the combined method was becoming more and more the usual operation. The great desideratum in all cases was good vision; the cosmetic effect was a secondary

consideration. This was especially the case in old people, and it was in old people that we were most frequently called upon to operate. The combined method left no anxiety as to prolapse and subsequent trouble to surgeon and patient. Cases for simple extraction should be very carefully selected. At present he performed the simple operation in about 30% of his patients.

Dr. W. B. Marple spoke in favor of the preliminary iridectomy and performed the combined method more and more frequently.

Dr. W. E. Lambert thought the combined method much safer and the visual results equally good. He spoke in favor of the preliminary iridectomy.

Dr. F. Valk stated that in his experience the results of preliminary iridectomy had been the worst. In his cases of simple extraction, prolapses had been few in number.

Dr. C. B. Meding thought it was exceedingly difficult, and in most cases impossible, to tell beforehand when prolapse would take place and when it would not. He thought that most of us started out with the idea of doing the simple operation. We were frequently disappointed and had to abscise the resulting prolapse of the iris. He called attention to the fact that in many cases of simple extraction the resulting pupil was not central.

Dr. Percy Fridenberg thought that if hypnotics were more frequently given before and after operation, the results might be better. The speculum was a dangerous instrument. The lid retractor should be used instead, whenever possible.

In closing the discussion Dr. E. B. Coburn introduced the following statistical table:

	SIMPLE.	COMBINED.
Prolapse of vitreous	4.27%	7.23%
Average vision after prolapse of vitreous	0.29	0.23
Incarceration of iris	4%	4.82%
Prolapse of iris	8.6%	—
Iritis	11.82%	13.15%
Suppuration	1.3%	1.91%
Discission	33.04%	27.61%
Perfect success	90.82%	88.08%
Partial success	6.3%	7.45%
Failure	2.88%	4.47%
Average vision	0.48	0.34

He also made the following statement, quoting from Dr. H. Knapp: "If we allow 10% for iridectomy as indicated by various unfavorable conditions; that iris prolapse must be excised in 10% and there are 10% of posterior synechiæ, there are still 70% of ideal recovery and the other 30% are much in the same condition as an equal number of combined extractions."

SYSTEMATIC REPORT ON THE PROGRESS OF OPHTHALMOLOGY IN THE FIRST QUARTER OF THE YEAR 1906.

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(*Continued from page 484.*)

IX.—LACHRYMAL APPARATUS.

194. SNEGIREW, K. **Acute bilateral and simultaneous affection of lachrymal and salivary glands.** *Westn. Ophth.*, 1906, No. 2.

195. GOLDZIEHER, M. **Sarcoma of the lachrymal gland, with remarks on autophagism.** *Centralbl. f. prakt. Augenh.*, xxx., 3, p. 65.

196. ULBRICH, H. **Treatment of chronic suppuration of the lachrymal sac.** *Prager med. Wochensch.*, 1906, No. 18, p. 229.

197. ELSCHNIG, A. **Congenital fistula of the lachrymal sac.** *Klin. Monatsbl. f. prakt. Aug.*, lxiv., 1, p. 57.

198. CAILLAUD. **Congenital fistulæ of the lachrymal region.** *Soc. d'Opht. de Paris*, 6 February, 1906.

199. JOCQS. **Notes on extirpation of the lachrymal sac.** *Ibid.*, 9 January, 1906.

200. MASLENIKOW, A. **Condition of the nasal cavities in affections of the lachrymal passages.** *Westn. Ophth.*, 1906, No. 1.

201. GALEZOWSKI, J. **Optic nerve atrophy following phlegmon of the lachrymal sac.** *Soc. d'Opht. de Paris*, 9 January, 1906.

202. CROWDER, T. **Dislocation of the lachrymal gland.** *Ophth. Rec.*, Sept., 1906.

203. ZIEGLER, S. L. **Bilateral lymphomata of the lachrymal, parotid, and submaxillary glands, due to tonsillar hypertrophy and consequent sub-oxidation.** *Annals of Ophth.*, January, 1906.

GOLDZIEHER (195, **Sarcoma of the lachrymal gland, with remarks on autophagism**), in examining secretions of a sarcoma of the lachrymal gland, found a peculiar type of cells looking like clear spaces. Under high power they appeared to be phagocytic cells with large pale cell-protoplasm and numerous cell-inclusions, which could not be differentiated from tumor cells. They are analogous to the corpuscle cells found in the follicles of trachoma and indicate autophagism of the neoplasm. These autophagic cells are not derived from the blood cells, the elements of the connective-tissue ground substance, or the specific cells.

ULBRICH (196, **Treatment of chronic suppuration of the lachrymal sac**) believes that the great mass of cases of chronic suppuration of the lachrymal sac should be treated radically, and that the use of sounds is generally inadvisable. The sac can be dissected out under adrenalin-cocaine anæsthesia. 90% heal by first intent. Tartuferi's boring instrument may be used to make a passage for styles, which are the best means of applying conservative treatment.

ELSCHNIG (197, **Congenital fistula of the lachrymal sac**) reports congenital fistulæ of the lachrymal sac in patients aged, respectively, five, twenty-one, and thirty-three years, A typical feature is the occurrence of a small umbilicated prominence just below the inner tarso-orbital ligament, from which the lachrymal passages can be syringed out. The latter are generally normal but may be infected from the skin, and so the fistulæ should be closed. They are due to obstructive growth of epithelium and consequent developmental defect, but are not aberrent canaliculi. In the case of the child of five, there was spontaneous closure of the fistula.

JOCQS (199, **Notes on extirpation of the lachrymal sac**) recommends extirpation in all cases of purulent inflammation or dilatation of the sac. The operation is not facilitated by previous injection of paraffin. It may be incised, stuffed with cotton-wool, and dissected out under local anæsthesia.

MASLENIKOW (200, **Condition of the nasal cavities in affections of the lachrymal passages**) had careful rhinological examinations made by specialists in 115 cases of disease of the lachrymal passages. The nasal cavities were found normal in 12%. There was septal deviation in 7%, chronic nasal catarrh in 7%, hypertrophic rhinitis in 36%, atrophic rhinitis in 10%, polypi in 3%, accessory sinus disease in 3%, nasal syphilis in 5%. There was constitutional syphilis present or past in 14% and in 5% grave suspicion. Extirpation of the sac is advised in all cases dependent upon incurable changes in the nasal cavities.

GALEZOWSKI (201, **Optic-nerve atrophy following phlegmon of the lachrymal sac**) reports a case of complete obliteration of the lachrymal passages in a woman of thirty-six, following phlegmonous inflammation of the sac with spontaneous perforation. At the same time an optic neuritis developed on the affected side and led to complete atrophy and blindness.

CROWDER (202, **Dislocation of the lachrymal gland**) found the lachrymal gland dislocated downward after an injury. It could be felt under the skin of the upper lid. Continued bandaging cured the prolapse. ALLING.

ZIEGLER (203, **Bilateral lymphomata of the lachrymal, parotid, and submaxillary glands, due to tonsillar hypertrophy and consequent suboxidation**) presents an unusual case of a girl of eighteen who developed, six weeks before the examination, a non-inflammatory swelling of both lachrymal glands. The parotids were also moderately enlarged and hard to the touch and the submaxillary glands were very much hypertrophied but less firm. There were no other glandular swellings. Enlarged tonsils and adenoids were found and interfered with proper oxidation. The patient was so markedly a mouth-breather that the case was diagnosed as one of suboxidation with entanglement of subkatabolic products in the lymphatic glands. There was further an antral cystitis with irritating secretion which was probably absorbed by the lymphatics. After removal of the tonsils and adenoids the lachrymal glands quickly returned to normal size and the parotid and submaxillary gradually subsided. ALLING.

X.—ORBIT AND ACCESSORY SINUSES.

204. Bereskin. **Varicose dilatation of the ophthalmic vein.** *Westn. Oph.*, 1905, No. 6.

205. Wagner. **Relapsing orbital hemorrhage due to deficient coagulability of the blood.** *Centralb. f. prakt. Augenh.*, xxx., 2, p. 42.

206. Ball, J. M. **Operation for the relief of cicatricial orbit.** *Annals of Ophth.*, October, 1905.

207. v. Hippel, E. **Contribution to the subject of rare anomalies.** *v. Graefe's Arch.*, lxiii., 1, p. 1.

208. Ray-Connor. **Congenital cyst of the orbit with microphthalmus.** *Arch. of Oph.*, xxxv., 1.

209. Kahn, H. **Contribution to the study of cavernous lymphangioma of the orbit.** *Deutschmann's Beitraege*, 65, p. 16.

210. Alger, E. **Intermittent exophthalmus with report of a case.** *N. Y. Med. Journ.*, January 27, 1906.

211. Rochon-Duvigneaud and Onfrey. **Chronic bilateral exophthalmus due to hypertrophic sclerosis of the oculomotor muscles.** *Soc. d'Opht. de Paris*, 5 December, 1905.

212. Cramer. **Case of fulminant suppuration of all accessory cavities with grave involvement of the eye.** *Klin. Monatsb. f. Augen.*, xliv., 1, p. 69.

213. Moreau. *Ocular and Orbital Symptoms of Sphenoid Sinus Disease*, Paris, 1906.

214. Parker, F. **Bilateral gumma of the orbits in a child eight years old.** *Ann. of Oph.*, April, 1906.

215. Black, N. **Frontal sinusitis as an ætiological factor in acute retrobulbar neuritis.** *N. Y. Med. Journ.*, June 2, 1906.

216. Massey, G. **Congenital sarcoma of the orbit.** *J. Am. M. Assn.*, April 28, 1906.

Wagner (205, **Relapsing orbital hemorrhage due to deficient coagulability of the blood**) reports the case of a weak, anæmic boy of five, who had had a cyst containing blood and albuminoid matter removed from the inner aspect of the lower lid. The pedicle of the mass was ligated. Five days later, there was a sudden and profuse hemorrhage into the lids, conjunctiva, and orbit. Blood was let out by free incision. There were several recurrences of the hemorrhage, one as much as three months later. Incision was then considered inadvisable, and 10% gelatine injected with good result.

Ball (206, **Operation for the relief of cicatricial orbit**) used Thiersch grafts to form the upper cul-de-sac, anchoring the grafts in one case with a silver plate, and in the other with an artificial eye. Maxwell's operation was performed on the

lower lid. In both cases, a sufficiently large socket was formed for an ocular prothesis.

v. Hippel (207, **Contribution to the subject of rare anomalies**) reports a congenital teratoma which appeared as a tumor the size of an apple protruding from the enlarged orbit of a child 5 days old. A fairly normal globe was attached to the growth. Microscopic examination showed a rudimentary eye and histological elements of all three embryonic layers, forming a sort of epignathus. In a second case with the clinical appearance of rudimentary globes there was nervous tissue, only; no trace of an eye-rudiment. There had evidently been no development of a secondary optic vesicle; the primary vesicle having become further developed into a typical nervous tissue. Fœtal purulent inflammation has nothing to do with the formation of anophthalmia. The latter factor is, however, accepted to explain the development of cryptophthalmus observed in a monster, 10 days old: having caused an obliteration of the conjunctival sac and thus mechanically interfered with the development of the lids. In the fourth case, that of a child of one year, there was a large defect of the upper lid, absence of the outer lid commissure, temporal displacement of the lower punctum, remnants of amniotic adhesions on the nose and cheek, and a large epibulbar dermoid on a microphthalmic globe. The latter presented a small ciliary coloboma with a connective-tissue strand running through it into the interior of the eye and connected also with the dermoid, almost complete absence of the vitreous, marked folding of the poorly developed retina with fairly normal nerve, choroid, and ciliary body. The lens lay in front of the optic cup in the deepest layers of the dermoid.

Ray (208, **Congenital cyst of the orbit with microphthalmus**) reports the clinical and histological findings in a case of congenital cyst of the orbit of large dimensions (4.5, 3.5 3.5*cm*) in a child of ten months. The globe was microphthalmic (7.5*mm* x 10*mm*), fairly well developed, and had a definite but very narrow communication with the cyst. The wall of the cyst showed a scleral fibrillary layer and a retinal cellular layer. Ray accepts Hess's theory of the patho-

genesis. Exploratory puncture is referred to as a means of differentiating from meningocele.

KAHN (209, **Contribution to the study of cavernous lymphangioma of the orbit**) describes a cavernous lymphangioma of the orbit which had been observed and grew gradually for six months in a woman of twenty-four, and caused displacement of the globe. Kahn thinks it was congenital. It was removed in its capsule. On gross inspection, cavernous spaces were evident which were found to contain fibrin clots, lymph cells, and blood. The framework was saturated with lymph and contained a large number of unstriped muscle-fibres. In case there is no capsule, Fuchs thinks it inadvisable to cut into such lymphomata, as they immediately collapse and cannot easily be removed without causing injury to the orbit, which is unjustifiable in the case of a benign neoplasm, Repeated electrolysis is the best procedure. In one case this was followed by profuse orbital hemorrhage which produced the ophthalmoscopic picture of obliteration of the central artery of the retina, and later that of thrombosis of the vein.

ALGER (210, **Intermittent exophthalmus with report of a case**) describes a case of periodic exophthalmus in a patient of thirty-four. The affection began five years previously with acute orbital cellulitis accompanied by exophthalmus. Since then the eye generally appears somewhat deep set and displaced outward. When the patient stoops forward or there is mechanical obstruction in the vessels of the neck causing venous congestion, the eye protrudes and the lids swell up. There is no pulsation or vascular murmur. In these cases there is probably a loss of elasticity in the ophthalmic vein, which may be due to congenital anomaly, traumatism, or disease, causing obstruction of the vein whenever there is the slightest disturbance of circulation.

ROCHON-DUVIGNEAUD and ONFREY (211, **Chronic bilateral exophthalmus due to hypertrophic sclerosis of the oculomotor muscles**) report a case of slight œdema of the lids with bilateral exophthalmus of low degree, which gradually increased and necessitated blepharorrhaphy. Optic atrophy developed at the same time. The patient died of heart-disease. Autopsy showed marked pseudo-hypertrophy of

the external ocular muscles and almost complete degeneration of the striped muscle-fibres.

CRAMER (212, **Case of fulminant suppuration of all accessory cavities with grave involvement of the eye**) treated a case of latent antrum suppuration originating in carious roots and spreading rapidly to all the other accessory cavities and to the orbit. A fistula formed alongside the eye which penetrated the conjunctiva and cornea, probably in consequence of lagophthalmus. The rest of the cornea was clear and free from irritation, the iris, unaffected. Careful examination of the accessory cavities is required and energetic intervention may be necessary in cases of obscure affections of the conjunctiva and lids.

PARKER'S (214, **Bilateral gumma of the orbits in a child eight years old**) case showed almost complete ptosis of both lids with limitation of upward motion of both eyes. Beneath each orbital ridge could be felt an immovable mass of bony hardness. It extended the whole length of the upper orbital margin. The eyeballs were normal. An incision through the upper lid was made for diagnostic purposes and showed that the mass lay closely against the bone but was easily detachable. Dissection was carried back as far as possible into the orbit but no point of attachment to the orbital wall could be found. Complete extirpation was impossible. The microscopic examination confirmed the diagnosis of gumma. Anti-syphilitic treatment was pushed without marked effect but the X-ray gave reaction and was probably, at least partly, effective in the ultimate recovery. The tumor remained practically stationary for an extended period but later gradually disappeared.

ALLING.

BLACK (215, **Frontal sinusitis as an ætiological factor in acute retrobulbar neuritis**) found a slight retrobulbar neuritis as evidenced by central relative scotoma without ophthalmoscopic findings and also some muscular insufficiency. Although there were no signs of sinus disease the anterior portion of the middle turbinated bone was diseased and was removed. The frontal sinus was then probed and recovery took place

promptly and the author concludes that the relation of the treatment of the nose to the cure were cause and effect.

ALLING.

MASSEY (216, **Congenital sarcoma of the orbit**) saw a child six weeks old which was born with a tumor the size of the tip of the finger projecting from the edge of the upper lid. This was removed by the attending physician but recurred and when seen was the size of a golf ball. The tumor and the eyeball, which was involved, were destroyed by mercuric cataphoresis. The child died of metastases. Diagnosis, round-celled sarcoma. ALLING.

XI.—CONJUNCTIVA.

217. MAYOU, M. **Inflammatory changes of the conjunctiva.** *Lancet*, March, 1905.

218. WRAY, C. **Treatment of follicular catarrh.** *Ibid.*, April 29, 1906.

219. RSCHANIZIN. **Histo-pathology of æstival conjunctivitis.** *Westn. Ophth.*, No. 6, 1905.

220. VOGT, A. **Experimental investigation on the significance of the chemical properties of basic aniline colors in regard to their injurious effect on the eye.** *Zeitsch. f. Augenh.*, XV., 1, p. 58.

221. REIS, W. **Parinaud's conjunctivitis and the question of plasma cells.** *Arch. f. Augenh.*, lxiii., 1, p. 40.

222. BERNHEIMER, ST. **Treatment of gonorrhœal ophthalmia** *Klin. Monatsbl. f. Aug.*, xliv., 1, p. 253.

223. LEOPOLD. **Ophthalmia neonatorum and 1% silver solution.** *Muench. med. Wochenschr.*, 1906, No. 18, p. 849.

224. v. HERFF. **Prevention of gonorrhœal ophthalmia by means of sophol.** *Ibid.*, No. 20, p. 958.

225. HIRSCH, G. **Suggestion for treatment of trachoma.** *Vossius's Sammlg.*, 1906.

226. DARIER, A. **Treatment of gonorrhœal ophthalmia in the adult by organic silver salts.** *Soc. d'Opht. de Paris*, 5 December, 1905.

227. SCHIELE, A. **Clinical picture and treatment of trachoma.** *Arch. f. Aug.*, liv., 3, p. 226.

228. BRADLEY, C. **Trachoma in children.** *Med. Record*, February 3, 1906.

229. HARMON, N. **Electrical treatment of trachoma.** *Brit. M. J.*, August 25, 1905.

230. SCHOLTZ, K. **Geographic distribution of trachoma in Hungary.** *Zeitsch. f. Aug.*, XV, 2, p. 105.

231. LUNDSGAARD, K. **Photo-therapy of lupus of the conjunctiva.** *Klin. Monatsb. f. Aug.*, xliv., 1, p. 191.

232. CABANNES. **Primary tuberculosis of the conjunctiva and its consequences. The conjunctiva as a portal of infection in tuberculosis.** *Arch. d'Opht.*, xxvi., p. 1.

233. BLOCK (Rotterdam). **A case of gumma of the tarsus.** *Ned. Tydsch. voor Geneesk.*, 1906, 1, No. 8.

234. LOHMANN, W. **On a rare and etiologically remarkable development of a pinguecula.** *Deutschmann's Beitr.*, ii, 65, p. 28.

235. PASCHEFF, C. **Papilloma of the limbus conjunctivæ.** *R. Lond. Ophth. Hosp. Rep.*, vol. 16, part 3.

236. PASCHEFF, C. **Lymphangioma of the conjunctiva.** *Arch. f. Ophth.*, lxiii., 188.

237. TROUSSEAU, A. **Myxofibroma of the bulbar conjunctiva.** *Ann. d'Ocul.*, cxxxv., p. 197.

238. TYELINGS, O. **Sarcoma of the anterior segment of the globe.** *Lancet-Clinic*, January, 1906.

239. MAYOU, M. **Implantation dermoid cyst of the conjunctiva.** *R. Lond. Oph. Hosp. Rep.*, vol. 16, Part 3.

240. HUBBELL, A. **Cases of hemorrhage from the eye.** *Am. J. of Oph.*, Jan., 1906.

241. THOMPSON, J. **Primary tuberculosis of the conjunctiva.** *Ann. of Oph.*, 1906.

242. GIFFORD, H. **Angioma of the conjunctiva successfully treated with injection of absolute alcohol.** *Oph. Rec.*, December, 1906.

243. JENNINGS, J. **Epithelioma of the ocular conjunctiva.** *Ann. of Oph.*, April, 1906.

244. TOOKE, F. **Morax-Axenfeld conjunctivitis.** *Ibid.*, May, 1906.

WRAY (218, **Treatment of follicular catarrh**) applies cocain to the follicles in trachoma and expresses them between the thumb-nails. 20% argyrol is then brushed over the conjunctiva, and "fixed" in the tissues by means of adrenalin. Cyanide of mercury, 1:10000, is recommended for applications.

RSCHANIZIN (219, **Histo-pathology of æstival conjunctivitis**) finds that the conjunctival excrescences in spring catarrh begin at the centre and grow toward the periphery. There is a new formation of dense fibrillary connective tissue with elastic fibres. At first there is a proliferation of round cells and infiltration, later a new-growth of elements of the stroma. The sub-conjunctival tissue becomes sclerosed and even hyaline and is irregularly distributed, sending branches into the superficial layers. The milky translucent appearance is due to the swelling of the epithelial layer, mucoid degeneration of the cells, lack of blood-vessels, and degeneration of the endothelium.

Reis (221, **Parinaud's conjunctivitis and the question of plasma cells**) found small cell infiltration and plasma cells in a large conjunctival granulation and in polypoid excrescences. Parinaud's conjunctivitis, like many other forms of chronic inflammation, shows similar cells.

Bernheimer (222, **Treatment of gonorrhœal ophthalmia**) uses hot applications in the first stage of gonorrhœal ophthalmia and finds the organic silver salts unsatisfactory as substitutes for the nitrate. Airol, if used very freely and allowed to form a thick paste in the conjunctival sac, brings about marked improvement in 3 days, and a cure in 8–14 days.

Leopold (223, **Ophthalmia neonatorum and 1% silver solution**) records 0.18% of blennorrhœa neonatorum in a large lying-in hospital. Early infections are due to untrained attendants, and late infection can be prevented by careful inspection and supervision of nurses and mothers. Credé's rule, to drop the solution into the eye and not to touch the lids, should be followed exactly. 1% solution used in this way will be found sufficient in a majority of the cases.

v. Herff (224, **Prevention of gonorrhœal ophthalmia by means of sophol**) considers silver nitrate "cruel" and recommends formo-nuclein silver (sophol) which is even less irritating than protargol. 9% solutions may be used freely. He finds 0.2% of blennorrhœa in institutions, and 0.7 to 0.8% in private practice. In a series of 3000 cases treated with 10% solutions of protargol there were no early infections and two late infections.

Hirsch (225, **Suggestion for treatment of trachoma**) treats trachoma by means of injections of 1 : 4000 oxy-cyanide of mercury into the retrotarsal fold. This is repeated 6 or 8 times, at intervals of 2 to 6 days, by which time there is generally marked flattening and shrinking of the conjunctival tissue.

Darier (226, **Treatment of gonorrhœal ophthalmia in the adult by organic silver salts**) recommends argyrol in all cases of blennorrhœa uncomplicated with corneal affection. In the latter cases silver nitrate is to be preferred.

Schiele (227, **Clinical picture and treatment of trachoma**)

considers granulations of the lower lid symptomatic of trachoma. He naturally finds a large percentage, 49%, of this affection, with spontaneous cure in 90%. He uses nascent iodine and argentamine and finds his results excellent.

BRADLEY (228, **Trachoma in children**) claims that the promiscuous use of copper sulphate is not free from danger. a weak solution of bichloride is just as efficacious and free from danger. Copper citrate has similar advantages. Local anæsthesia is sufficient for the operative procedures.

HARMON (229, **Electrical treatment of trachoma**) is dissatisfied with the results of X-ray and radium treatment in trachoma. The latter method was repeated 37 times in one case, and 139 times in another without effect.

SCHOLTZ (230, **Geographic distribution of trachoma in Hungary**) found 0.2% to 5.4% of trachoma in various parts of Hungary. There was no racial predilection. The Roumanians seemed to show fewer severe cases. The disease is quite common in immigrants returning from America.

BLOCK (233, **A case of gumma of the tarsus**) treated a man of twenty with a reddish circumscribed tumor of the upper lid of three days' standing. The conjunctiva was suffused and swollen. Two days later the growth had softened markedly and the conjunctiva was covered with a grayish membrane. It looked like a chalazion but finally turned out to be a gumma. In the cases previously reported, no mention is made of the infiltration of the conjunctiva.

LOHMANN (234, **On a rare and etiologically remarkable development of a pinguecula**) noted marked widening of the palpebral fissure in a man of sixty-nine, due to atrophy and relaxation of the subconjunctival tissue. There was a pinguecula at either extremity of the corneal equator, connected by a band of similar fatty tissue running below and around the margin.

PASCHEFF (235, **Papilloma of the limbus conjunctivæ**) examined 4 cases of papilloma of the conjunctival limbus. The growth has the appearance of a mulberry, grows slowly, and is generally benign, although it may develop into epithelioma. It may occur at any age. It may start in the con-

junctiva and grow toward the cornea and limbus, arise at the limbus and grow without spreading to the cornea, or develop entirely on the cornea after originating at the limbus.

PASCHEFF (236, **Lymphangioma of the conjunctiva**) reports the first recorded case of acquired circumscribed cavernous lymphangioma of the conjunctiva. The tumor was composed of new-formed connective tissue and numerous lymph-vessels, which had developed in consequence of the dilatation of lymph spaces. There were no true blood-vessels either at the centre of the growth or in the peripheral connective tissue, which latter represented the normal fibrous layer of the conjunctiva.

MAYOU (239, **Implantation dermoid cyst of the conjunctiva**) finds that implantation cysts may develop in consequence of surface epithelium growing downward into the depths along a wound or by actual inclusion through the medium of a foreign body. He reports a case in which the eye was injured by a bruise with a piece of wood. Within a week a cyst had formed around a splinter which had penetrated the conjunctiva. The cyst wall was formed of cells derived from those of the conjunctiva which had been carried into the depths by the foreign body. There was no connection whatever with the surface. In another case the cells showed their superficial conjunctival origin clearly, but there was no proof of their etiologic relation.

HUBBELL'S (240, **Cases of hemorrhage from the eye**) cases are as follows: Case I. After misuse of silver nitrate (2% solution every four hours) in the eyes of a new-born child there was continuous bleeding from the conjunctiva which was finally controlled by ice applications.

Case II. Hemorrhage from a degenerated and ruptured eyeball amounting to a pint of blood. The condition was undoubtedly glaucoma originally with subsequent rupture of the cornea followed by the profuse hemorrhage. ALLING.

THOMPSON (241, **Primary tuberculosis of the conjunctiva**) saw a young woman of twenty-four presenting a simple round ulcer about *2mm* in diameter in the centre of the

tarsal cartilage of the right upper lid. The edges were sharply defined and the base clean. There was no induration surrounding it. Later another small ulcer appeared near the original one. The patient showed no signs of tuberculosis. No tubercle bacilli were found in the scrapings. The preauricular gland continued to swell and was enucleated. It proved to be tuberculous. An inoculation was made in a guinea-pig which later died of tuberculosis. The tissue surrounding the ulcer was thoroughly excised and the patient completely recovered. ALLING.

GIFFORD'S (242, **Angioma of the conjunctiva successfully treated with injection of absolute alcohol**) report is of a child of four years presenting an angioma of the ocular conjunctiva which reached into the fornices and overlapped the cornea. There was slight exophthalmus and the tumor probably extended back along the inner side of the globe for some distance. He tried the experiment of injecting a few drops of absolute alcohol into the mass and after ten days found the tumor smaller. Repeated treatments entirely cured the case and this without severe reaction or pain. The advantages over hot water, perchlorid of iron, etc., are obvious. ALLING.

JENNINGS (243, **Epithelioma of the ocular conjunctiva**) saw an epithelioma which had grown to great size, measuring four inches in diameter. It sprang from the ocular conjunctiva and did not involve the eyeball except by infiltration of the cornea. The mass was excised and at the same time both lids and the entire contents of the orbit were removed. ALLING.

TOOKE (244, **Morax-Axenfeld conjunctivitis**) gives a complete review of our knowledge of blepharo-conjunctivitis. His observations as to the prevalence of the disease locally (Montreal) are not sufficiently extended but the disease is occasionally seen. Bacteriological examination of all cases of conjunctivitis except trachoma showed the bacillus in fourteen per cent., which is low compared with the results of observers in other places. ALLING.

XII.—CORNEA, SCLERA, ANTERIOR CHAMBER.

245. KRAEMER. **Congenital pigmentation of the cornea.** *Centralbl. f. prakt. Aug.*, xxx., 2, 39.

246. SEEFELDER. **Histological contribution to congenital corneal opacities.** *Arch. f. Aug.*, liv., 1, 85.

247. FREUND. **Latticed corneal opacity.** *Wien. klin. Wochensc.*, 1906, No. 5.

248. ROCHAT. **Family corneal degeneration.** *Ned. Tydsch. voor Geneesk.*, 1906, 1, p. 8.

249. VIDEKY, R., and GOLDZIEHER, M. **A form of nodular corneal infiltration.** *Klin. Monatsbl. f. Aug.*, xliv., 1, 242.

250. PETERS, A. **Congenital defects of Descemet's membrane.** *Ibid*, p. 27.

251. FLEISCHER, B. **Tears of Descemet's membrane.** *Ibid.*, p. 64.

252. SEEFELDER. **The development of peripheral corneal ectasia.** *Ibid.*, p. 61.

253. LAAS. **Keratomalacia.** *Zeitschr. f. Aerztl. Fortbldg.*, 1906, No. 6.

254. POSEY, W. **Triangular opacity in the superficial layers of the cornea occurring in syphilitic subjects.** *Ophth. Rec.*, Feb., 1906.

255. COLLINS, E. TREACHER. **Initial lesion of the conjunctiva and interstitial keratitis.** *R. Lond. Hosp. Rep.*, 16, 1.

256. ELSCHNIG, A. **Keratitis parenchymatosa.** *Arch. f. Ophth.*, lxii., 3, p. 481.

257. ENSLIN, E. **Keratitis parenchymatosa following traumatism.** *Zeitsch. f. Aug.*, xv., 3, 227.

258. CAMPBELL, K. **Acute interstitial keratitis following injury.** *Med. Press and Circular*, May 17, 1905.

259. TODD, F. **Complete absorption of trachomatous pannus brought about by typhoid fever.** *Ophth. Rec.*, January, 1906.

260. HELBRON. **Treatment of serpent ulcer of the cornea.** *Berl. klin. Wochensch.*, 1906, No. 21, p. 678.

261. FALTA, M. **Pathology of pterygium.** *Arch. f. Aug.*, viii., 2, p. 174.

262. TERRIEN, F. **Transitory ectasia in the course of keratoconus.** *Arch. d'opht.*, xxvi., p. 9.

263. WADZINSKY, P. **Gummatous tumor of the sclera.** *Westn. Ophth.*, 1906, No. 2.

264. SEABROOK, H. **Ulcus rodens** (Mooren). *Med. Record*, March 31, 1906.

265. WOOD, C. A. **Fissures of Descemet's membrane probably due to high myopia.** *Ophth. Rec.*, December, 1906.

266. ELLETT, E. C. **Dendritic keratitis of malarial origin.** *J. Am. Med. Assn.*, June 30, 1906.

267. SMITH, E., and GIBBS, H. **Primary tuberculosis of the cornea.** *Oph. Rec.*, December, 1906.

268. STRADER, G. **Corneal lesions in snow blindness.** *Oph. Rec.*, November, 1906.

269. FAITH, T. **Interstitial keratitis excited by traumatism.** *Ann. of Ophth.*, April, 1906.

270. SHUMWAY, A. **Double rupture of the sclera due of the blow of a fist.** *Ophth. Rec.*, Nov., 1906.

SEEFELDER (246, **Histological contribution to congenital corneal opacities**) examined an adherent leucoma histologically. He ascribes the formation to fœtal suppuration of endogenous character without deciding whether the perforation of the cornea took place from within outwards or *vice versa*.

FREUND (247, **Latticed corneal opacity**) found latticed opacity of the cornea developing at puberty as an inherited disease in two large families.

ROCHAT (248, **Family corneal degeneration**) found 6 members of one family affected with corneal degeneration of the latticed and nodular form described by Haab and Groenouw, but with other degenerative symptoms. All showed a central corneal opacity composed of dots and spots, some confluent, but non-vascularized. There was no irritation, but the patients complained of photophobia. In all 6 cases there were anomalies of the skin and hair and atrophy of bones, notably of the lower jaw. The female members of the family were immune.

VIDEKY and GOLDSIEHER (249, **A form of nodular corneal infiltration**) saw corneal changes consisting in prominent subepithelial nodules without inflammation, which had been present for three years in a woman of forty-three. A thin gray line and a few vessels in an otherwise normal stroma ran toward the nodules. These were excised, leaving a fine deep-seated opacity. The therapeutic effect was nil. The growths were found to consist of proliferated corneal corpuscles with hyaline degeneration of the epithelium. No inflammation or lupus.

PETERS (250, **Congenital defects of Descemet's membrane**) reports a case of tetany in a newborn child with myotonia and hydrocephalus ending fatally at the age of nine months. There were transitory spasms of the external recti. At

birth there were slight opacity and stippling of the centre of the cornea, and surrounding this area a ring-shaped grayish white opacity with anterior synechia; and a marginal opaque ring (embryotoxon). There were no vessels in the cornea and no trace of inflammation. Fluorescin colored the deep layers green at the centre. The cause of the anomaly was probably pressure by the lens during fœtal life. There was no cataract.

FLEISCHER (251, **Tears of Descemet's membrane**) reports two cases of high myopia in which he found the double bordered lines recently described as occurring in hydrophthalmus and due to tears of Descemet's membrane. There were signs of stretching at the posterior pole as well.

SEEFELDER (252, **The development of peripheral corneal ectasia**) examined a woman of sixty-two who complained of deterioration of vision of 3 months' standing without inflammatory symptoms. In one eye the upper half of the cornea presented a semilunar protrusion reaching almost from one limbus to the other. It was about 3.5*mm* wide. The margin was separated from the rest of the cornea by a linear opacity, but there was no gutter. The neighboring cornea at the sides was covered with thin white sclerosed conjunctiva like a pterygium. The ectatic zone was traversed by vessels arranged in two layers, but was quite transparent. In the other eye there were also two pterygia in the palpebral fissure. There were several vascularized opacities in the upper part of the cornea. The pterygia were probably due to a superficial marginal keratitis.

LAAS (253, **Keratomalacia**) observed the development of blindness in 6 out of 8 eyes in four children affected with keratomalacia. All remained alive under strengthening diet. The corneal infiltrations are generally overlooked by the parents, as there is little irritation.

POSEY, (254 **Triangular opacity in the superficial layers of the cornea occurring in syphilitic subjects**) reports two cases of triangular whitish opacity made up of fine parallel lines, with the base directed toward the lower margin of the cornea. At this point there appeared to be a thickening of the epithelial and subepithelial elements. The opacities

were slightly raised, and had sharply defined outlines. There was probably a deposit of lime salts in the cornea.

COLLINS (255, **Initial lesion of the conjunctiva and interstital keratitis**) saw a man of twenty-two with an ulcer of the left lower lid which had all the characteristics of a hard chancre. Two weeks later eruption and sore throat developed although he had been put on mercury at once. About 18 months later he reappeared with interstitial keratitis which cleared up under treatment. C. saw 5 other cases in which interstitial keratitis developed only in the eye which had had the initial lesion. He also reports this corneal affection in a young woman who had the primary sore on the lip. In these 6 cases from 5 months to 10 years elapsed between the primary lesion and the development of keratitis.

ELSCHNIG (256, **Keratitis parenchymatosa**) examined two cases of heredito-specific keratitis which was progressing in one eye to intense and complete opacification and clearing up in the other. In the former, the lamellæ were normal in many places, but the spaces between them were crowded with cellular elements. The fixed corneal corpuscles were proliferated, the nuclei polymorphous. Wander cells and giant cells were found in large numbers. The new-formed vessels were nearly endothelial tubes. Descemet's membrane was not affected. Clearing of the opacity takes place by growth of the fixed corpuscles and a gradually more regular arrangement.

ENSLIN (257, **Keratitis parenchymatosa**) is convinced by the observation of 3 cases of parenchymatous keratitis after injury, that traumatism plays an important etiological rôle in this affection. In the case reported no constitutional disease could be proven.

CAMPBELL (258, **Acute interstitial keratitis following injury**) reports a similar case of interstitial keratitis immediately following injury. The patient, aged twenty-six, showed unmistakable signs of congenital syphilis. A spark had flown into his eye. and a few days later the keratitis developed. Two weeks later the other eye became affected.

TODD (259, **Complete absorption of trachomatous pannus**

brought about by typhoid fever) saw a pannus which had resisted treatment for some time, clear up completely in the course of a typhoid fever. Increased activity of the cornea in consequence of the well-known tendency to endothelial proliferation and formation of phagocytes probably assisted absorption.

HELBRON (260, **Treatment of serpent ulcer of the cornea**) serpent ulcer in combination with anti-pneumococcus serum.

FALTA (261, **Pathology of pterygium**) thinks stationary pterygium is not quite harmless, as it may interfere with the spontaneous cure of trachoma. A case of irido-cyclitis which had resisted treatment for five weeks, improved at once on removal of a small pseudo-pterygium which encroached *1mm* on the cornea.

TERRIEN (262, **Transitory ectasia in the course of keratoconus**) reports the case of a woman of thirty-eight with double keratoconus. In the eye which had not been operated on by galvano-cautery an ectasia of the conus developed. This healed completely after tarsorrhaphy, but a corneal opacity remained which was more marked than before. There was probably a tear of Descemet's membrane at the apex, with subsequent entrance of aqueous between the corneal lamellæ. The œdema was the determining cause of the ectasia.

WADSINSKY (263, **Gummatous tumor of the sclera**) describes a gummatous tumor of the lower part of the sclera which was *12mm* long, *9mm* broad, and *5mm* high and developed after mechanical injury. Initial lesion ten months previously. The growth disappeared rapidly under inunctions and iodides.

SEABROOK [264, **Ulcus rodens** (Mooren)] has found reported ten cases of the rodent ulcer of the cornea, which was first differentiated by Mooren, in addition to the 74 collected by Nettleship in 1902. His own case was in a healthy man of 37 who had suffered for eighteen months with a progressive ulceration which had involved nearly all the cornea except a small patch. Carbolic acid and dionin seemed to arrest the disease and the eye promises to retain a fair appearance and some vision. ALLING.

WOOD'S (265, **Fissures of Descemet's membrane probably due to high myopia**) case was a girl of ten whose right eye was amblyopic. The pupil was dilated slightly and the fundus showed the gross damages of high myopia. Refraction was — 20 D., but the vision was not improved by correction. The centre of the posterior surface of the cornea was occupied by a series of fine, oblique, parallel reddish lines. There were no other alterations in the cornea. Similar linear defects in the endothelium of the cornea have been observed in buphthalmos myopia, keratoconus, and intraocular tumors.

ALLING.

ELLETT (266, **Dendritic keratitis of malarial origin**) is strongly impressed with the malarial origin of this form of keratitis and has not seen it without a distinct history of malaria except in one case. Seldom if ever has he observed that treatment for the general condition has any effect upon the ulceration. He has obtained the best results from iodine applications. ALLING.

The case of primary tuberculosis reported by SMITH and GIBBS (267, **Primary tuberculosis of the cornea**) occurred in a woman of forty-four otherwise healthy. The eye showed a trefoil mass covering two-thirds of the posterior surface of the cornea and involving about one-third of its thickness. There were no ulcerations or perforation of Descemet's membrane. At the end of six months the eye became glaucomatous and was enucleated. A secondary growth was present at the iris angle. The mass showed giant cells, many capillaries, and beginning necrosis. Sections were stained for tubercle bacilli but none were found. No inoculation experiments are recorded. ALLING.

STRADER, (268, **Corneal lesions in snow blindness**) saw three cases of this affection complicated by erosion of the corneal epithelium and believes that this lesion has been commonly overlooked. ALLING.

FAITH (269, **Interstitial keratitis excited by traumatism**) recites four cases of parenchymatous keratitis which are of interest because the corneal process had for the exciting cause some form of traumatism. The predisposing cause in three cases at least was hereditary syphilis. ALLING.

According to SHUMWAY (270, **Double rupture of the sclera due to the blow of a fist**), his case, which showed two ruptures of the sclera, one on either side of the cornea, is quite unique on this account. There were intraocular hemorrhage, iridodialysis, and subluxation of the lens. The eye was lost through inflammation. ALLING.

Sections XIII.–XVIII. Reviewed by STAFF-SURGEON DR. NICOLAI, Berlin.

XIII.—LENS.

271. HOSCH, **Etiology of zonular cataract.** Ophth. Miscell. *Arch. f. Augenh.*, liv., 156.

272. v. HIPPEL, A. **Histological study of congenital cataract.** *Graefe's Arch. f. Ophth.*, lxii., 3, p. 417.

273. GUENSBURG, J. J. **Cataract due to lightning stroke.** *Westn. Ophth.*, 1906, No. 1.

274. NETTLESHIP, E. **Heredity in the various forms of cataract.** *R. Lond. Ophth. Hosp. Rep.*, xvi., 3.

275. MUNTERDAM. **A case of microphakia.** *Ned. Tydschr. v. Geneesk.*, 1906, i., p. 8.

276. ELLETT, E. C. **Cataract caused by a discharge of industrial electricity.** *Ophth. Record*, 1906, No. 1.

277. v. MICHEL. **Pathologic-anatomical findings in acquired dislocation, spontaneous and traumatic, of the lens.** *v. Leutbold. Gedenkschr.*, vol. ii.

278. GREEFF, R. **Spontaneous disappearance and clearing of lenticular opacities.** *Fortschritte der Medicin*, 1905, No. 3.

279. SPERBER. **Tetany cataract.** *Arch. f. Augenh.*, liv., 4, 386.

280. BRUECKNER, A. **Spontaneous reposition of an ectopic lens with renewed dislocation.** *Ibid.*, 2, p. 186.

281. MORAX. **Traumatic dislocation of the lens into the vitreous.** *Soc. d'opht. de Paris*, 1905, Oct.-Dec.

282. SPICER. **Reclination of a dislocated lens in the vitreous.** *Trans. British Ophth. Soc.*, 1906, Feb.

283. ROURE. **Sympathetic irritation due to subluxation of the lens.** *Ann. d'ocul.*, cxxxv., 135.

284. COLLINS, T. **Capsular complications after cataract extraction.** *Trans. Brit. Med. Assn.*, July 28, 1905.

285. QUACKENBOSS, A. **Choroidal hemorrhage following cataract extraction.** *Arch. f. Aug.*, liv., 2, 199.

286. WILKINSON. **The preventive treatment of senile cataract.** *Gaillard's Southern Med.*, January, 1906.

287. SMITH, H. **Removal of cataract in the capsule.** Arch. of Ophth., 1905, 601.

288. LANDOLT, M. **The wound surface of sections for cataract extraction and iridectomy.** *Thèse de Paris*, 1905.

289. BERARD. **Preliminary iridectomy in cataract operations.** *Ophth. provinc.*, 1905, December.

290. PAGENSTECHER. **Cataract operations with special reference to secondary operations.** *Zeitsch. f. Augenh.*, XV.

291. SANTOS-FERNANDEZ, J. **Opacities of the hyaloid membrane after cataract extraction.** *Rec. d'opht.*, XXVIII., 141.

292. FRENKEL, H. **Operation for traumatic cataract complicated with trichiasis and congenital aniridia.** *Ibid.*, 75.

293. STEVENSON, M. D. **New punch for pupillary membranes, etc.** *Ophthalmology*, Jan., 1906.

294. BOESE, R. **Healing process in wounds of the posterior capsule.** *Zeitsch. f. Aug.*, XV.

295. ARMAIGNAC. **Congenital cataract operated by discission in a patient of thirty.** *Soc. de méd. et chir. de Bordeaux*, 1905, November.

296. DE FONT-REAULX, P. **Results of removal of the transparent lenses for high myopia.** *Ann. d'Ocul.*, CXXXV., 1905.

297. ENSLIN. **Blue vision after cataract extraction.** *Zeitsch. f. Aug.*, XV., 2, 136.

298. ELLIOTT, R. H. **Colored vision after cataract extraction.** *Ophthalmology*, 1906, January.

299. CRITCHETT, A. **Extraction of senile cataract.** *Ophthalmoscope*, March, 1906.

300. HERBERT, Maj. H. **Extraction of cataract in the capsule.** *Ibid.*

301. POWER, H. **Needling for after-cataract and its dangers.** *Ibid.*

302. BROCKMAN, E. F. **On loss of vitreous in cataract extraction.** *Ibid.*

303. MARSHALL, E. DEVEREUX. **Some points in extraction of cataract.** *Ibid.*

304. MCMILLAN, A. **Intracapsular cataract.** *Glasgow Med. Chir. Soc.*, January 12, 1906.

305. MORGAN, Maj. **Traumatic cataract due to lightning stroke.** *Journ. R. A. M. C.*, Feb. 1905.

306. SMITH, H. E. **Cataract extraction with preliminary capsulotomy.** *Ophth. Rec.*, Oct., 1906.

307. MITTENDORF, W. **Punctate and hyaline opacities of the posterior lens capsule.** *Ophth. Rec.*, October, 1906.

308. CLARK, C. F. **The anterior capsule in the extraction of cataract.** *Ohio State Medical Journ.*, September 15, 1906.

309. WOOD, CASEY A. **Some forms of hereditary cataract.** *Ophth. Rec.*, April, 1906.

HOSCH (271, **etiology of zonular cataract**) calls attention to the factor of rhachitis. This affection may be congenital,

according to clinicians, while pathologists deny this possibility. There is no doubt of zonular cataract developing before birth (Hirschberg, Becker), although v. Hippel and the author were unable to find any lenticular opacities in their systematic examinations of the eyes of the newly born. A family with congenital zonular cataract is also reported. In the presence of other anomalies we must ascribe the lens condition to arrest of development or to inheritance.

v. Hippel (272, **Histological study of congenital cataract**) reports the various forms of lenticular opacity found in the newly born, and describes a coloboma of the lens causing symmetrical halving.

Guensberg (273, **Cataract due to lightning stroke**) saw a patient who had been struck by lightning 6 years previously. Sudden blindness and photophobia for three weeks, followed by improvement of vision, which remained unchanged. V, O. D. = $\frac{2}{10}$; V, O. S. = F. at 10 feet. In both eyes there was a small central capsular opacity and dotted sector-like clouding of the lens substance with clear interspaces allowing a fair view of the fundus. Partial nerve atrophy. Twenty-four similar cases are reviewed. Cataract after lightning stroke is explained by Guensburg as due to the deleterious action of the ultra-violet rays of the excessive electrical discharge on the epithelium of the lens capsule and of the ciliary body.

Nettleship (274, **Heredity in the various forms of cataract**) considers both congenital lenticular opacities and those which are acquired or develop after birth. Of the first-class there were 183 cases, 90 males and 93 females. Of the second class there were 145 families, represented by 500 cases. The histories of a large number are given in detail.

Munterdam (275, **Microphakia**) reports the case of a patient who in 1900 had myopia of 13 D. with V. $\frac{1}{3}$. In 1903, he appeared again with a cloudy and œdematous cornea and widely dilated pupil. The lens was movable and its margin could be seen in the pupillary area. In the left eye there was a tremulous iris. After extraction of the right lens there was a hypermetropia of 11 D. with astigmatism. The original

condition was probably one of lenticular myopia with excessive curvature of the anterior surface and relaxation of the zonula. Ophthalmometric examination showed that the radius of curvature of the anterior surface was smaller than normal, and the lens unusually thick.

ELLETT's patient (276, **Cataract caused by a discharge of industrial electricity**) got a shock of 500 volts through his body. Vision was good immediately after. Three months later there were signs of mild iritis and in two months more the lens of one eye became cataractous.

v. MICHEL (277, **Pathologic-anatomical findings in acquired dislocation, spontaneous and traumatic, of the lens**) discusses the relation of the luxated lens to neighboring tissues. In dislocation into the anterior chamber there may be a great variety of conditions, and possibly rotation of the lens. Pressure against the cornea may cause atrophy and necrosis of the endothelium, or thinning of the entire cornea by degeneration of the membrane, and the nutrition of the lens itself may suffer. No tear was ever found in the capsule. The zonular fibres had invariably torn off at the capsule. In subluxation, v. Michel found destruction of the zonula, exudation into the vitreous, adhesion to the iris, and in a case of penetrating scleral wound a cicatricial band in the vitreous.

GREEFF (278, **Changes in lenticular opacities**) makes a sharp distinction between absorption and shrinking on the one hand, and clearing up on the other, which is very rare in the human lens. Cases of this sort have been observed in diabetes (Seeger, Nettleship) and traumatic cataract (Plaut, Schmidt-Rimpler, Magnus, Mills, Knapp). In animals, particularly rabbits, the process of clearing of opaque lens masses occurs beyond a doubt.

SPERBER (279, **Tetany cataract**) reports six cases of this affection which he claims develops rapidly under the influence of toxins which cause a disturbance of nutrition. This protoplasm poison enters the aqueous and being imbibed by the lens destroys the capsular epithelium and causes opacification of the fibres.

BRUECKNER (280, **Spontaneous reposition and renewed**

dislocation) reports a case of double congenital ectopia of the lens. In the right eye the lens sank down into the pupillary area after forty-five years, and after a few weeks disappeared in the vitreous. The eye was not apparently affected by this process.

SPICER (282, **Reclination of a dislocated lens**) reports a left eye blinded by injury, the right eye without perception of light and presenting total posterior synechia. The left lens was opaque and dislocated downwards and inclined backwards. Perception of light with good projection. Reclination was performed with a couching needle and vision rose to $\frac{6}{6}$.

ROURE (283, **Sympathetic irritation due to dislocated lens**) reports four cases of which two are open to the objection that the precedent injury may have been the cause of the sympathetic irritation. In the other two cases the symptoms in the second eye disappeared after removal of the dislocated lens.

TREACHER COLLINS (284, **Capsular complications after cataract extraction**) tries to avoid adhesion of capsule shreds to the lips of the section and capsular opacities by extracting the capsule with forceps. This is the best way to prevent increased tension and secondary operations.

QUACKENBOSS (285, **Choroidal hemorrhage following cataract extraction**) found reports of 3 cases of this accident in 3624 extractions. It is probably due to degenerative processes in the choroidal vessels, although histological examination has not proven this hypothesis.

SMITH (287, **Extraction of cataract in the capsule**) claims that his method obviates the necessity of secondary operation, gives better vision, and is free from the danger of inflammatory complications. Loss of vitreous was noted in only 7%, and was slight. Iritis, prolapse, and panophthalmitis were very rare.

BERARD (289, **Preliminary iridectomy in cataract operations**) compares the simple and combined operation, preferring the latter on account of greater security. De Wecker's methods of operating in two sittings is the best, but practical considerations often make it impossible.

PAGENSTECHER (290 **Cataract extraction with special reference to secondary operations**) sums up the practical teachings of his wide experience and large material. He makes a conjunctival flap to insure rapid healing and guard against infection. The operative field is sterilized with bichloride of mercury, 1: 5000, and a loose dressing put on both eyes after extraction. In the secondary operation it is important not to lose aqueous, to avoid injuring the vitreous, and to keep the patient under observation for several weeks.

STEVENSON (293, **Punch for pupillary membranes**) has devised an instrument which resembles that of Rrueger-Krjukow and consists of two blades, one thin and solid, which engages a cutting ring and punches out a hole when the two blades come into contact. The exsected piece can be entirely removed from the anterior chamber.

ARMAIGNAC (295, **Discission for congenital cataract**) operated on a patient of thirty. V, O. D. = 0; V, O. S. = F. at 1*m*. After discission, the lens masses were extruded into the anterior chamber and absorbed. V rose to ½. The procedure means much to a patient who has a chance to regain vision after thirty years of blindness.

ENSLIN (297, **Cyanopsia after cataract extraction**) discusses blue vision following removal of an opaque lens. This has no relation to erythropsia, which develops later, but is due to contrast following the removal of the yellowish nucleus which formerly absorbed the blue rays.

ELLIOTT'S (298, **Colored vision after cataract extraction**) patients complained of seeing everything colored. Of 250 cases operated in the course of time 110 saw pure white. The others had colored vision. Most of them saw blue; others red; a few, yellow and green, while others saw things blue, red, or white, at various periods after operation. Later observations could not be made as the patients left the hospital five days after operation.

CRITCHETT (299, **Extraction of senile cataract**) gives a history of the ways in which cataracts have been removed by different operators since he first witnessed one removed by Bowman at Moorfields. He gives his experience both in

London and on the continent, and details of the operation he now performs himself.

HERBERT (300, **Extraction of cataract in the capsule**) discusses Major Smith's removal of the lens in the capsule. As escape of vitreous is more common, even in skilled hands when the capsule is removed, Herbert is of opinion that the operation violates the essential conservatism of correct surgery in that it induces an additional risk for the sake of advantages which can be obtained without it.

He concludes by saying that "not a scrap of evidence has been advanced, sufficient to justify removal of transparent capsule, except under very pressing circumstances. . . . By ordinary extraction, followed if necessary by needling, quite as good results can be got with distinctly less risk, and at a cost merely of a little more troublesome and protracted after-treatment."

POWER (301, **Needling for after-cataract and its dangers**) is profoundly impressed with the dangers which attend the ordinary needling of cataract. He urges upon surgeons to wait as long as possible in order that the lens matter or capsule may have every possible chance to absorb and become clear without having to needle it. He would be very content with extremely moderate vision after cataract extraction provided that needling were dispensed with. He considers that any method should be adopted, such as removal of the anterior capsule with forceps, so as to avoid the performance of an operation which he considers to be so hedged about with danger of all sorts.

BROCKMAN (302, **Regarding the loss of vitreous in the operation for extraction of cataract**) believes that vitreous is much less likely to be lost in extraction without iridectomy, than if a portion of the iris be removed, his own results show a higher percentage of "good" vision in the non-iridectomy ones. On the whole he is much in favor of the simple operation.

MARSHALL (303, **On some points in relation to extraction of cataract**) reviews the indications for removal of cataract. He insists that it is not justifiable to remove a cataract in one eye, while there is anything like good vision in the other.

He recounts several cases of sympathetic ophthalmitis in an eye with good vision, and a clear lens, on account of some one removing a cataract in the other eye. Even if the case does well, the two eyes can never be used together, and the patient is little if any better off than he was before. He prefers a good-sized incision and a large conjunctival flap. He opens the capsule with the knife while travelling across the anterior chamber, and then removes the lens. If the iris does not go back readily he does an iridectomy, though if possible this is dispensed with.

McMillan (304, **Intracapsular cataract extraction**) reports 4 cases. The details illustrate the advantages and difficulties of the operation. What with prolapses and loss of vitreous, together with other difficulties, the reader will no doubt agree with the author when he says that "the ordinary combined operation appears to be safer for general use, especially in comparatively inexperienced hands."

Morgan, J. C. (305, **A case of traumatic cataract due to lightning stroke**). A man who entered the army two years previously and had good vision was encamped outside Pretoria during a thunder-storm. He was struck by lightning, and in consequence he was rendered blind for several days. The sight of one eye recovered, but the other remained defective. Nearly two years later a cataract was present in the blind eye, the sight of which was finger movements.

Smith (306, **Cataract extraction with preliminary capsulotomy**) advocates a novel variation in the sequence of steps in extraction. With a dilated pupil he makes a crucial incision in the anterior capsule and after about four hours performs the usual extraction. The advantages claimed are the avoidance of a difficult capsulotomy which is sometimes impossible to escape in the ordinary method and further the ability to judge somewhat of the consistency of the cortical matter and hence have a better knowledge as to the proper size of the corneal incision. Alling.

Mittendorf (307, **Punctate and hyaline opacities of the posterior lens capsule**) calls attention to the occasional occurrence of a minute dot upon the posterior capsule of the

lens of the normal eye which is usually on the nasal side near the centre. This is well known to careful observers and probably represents the point of attachment of the hyaloid artery. ALLING.

CLARK (308, **The anterior capsule in the extraction of cataract**) first makes a long, rather peripheral, incision in the superior quadrant of the capsule similar to that of Knapp. Next two vertical incisions one tangent to the nasal and one to the temporal side of the somewhat dilated pupil. By a careful manœuvre an attempt is made to connect by a horizontal cut the lower ends of the vertical incisions. The excised square of capsule is usually brought away with the delivery of the lens. ALLING.

WOOD (309, **Some forms of hereditary cataract**) gives charts representing the occurrence of hereditary cataract in three families which go to show that heredity is a potent factor in this condition. In one case, out of thirty-one individuals representing four generations eleven members had cataract. In another of forty-eight individuals in three generations fourteen had cataract of the juvenile type. In another of thirty-three in two generations six were afflicted. In the last instance none of the cataracts developed until puberty, and in five out of the six operations were performed but with one exception all became blind from secondary glaucoma. Consanguinity of parentage does not appear as a factor in the cases related. ALLING.

XIV.—IRIS.

310. COLLINS. **Two cases of bilateral congenital coloboma of the iris with a bridge.** *Trans. R. Ophth. Soc.*, February, 1906.

311. PETERS, A. **Congenital defects of Descemet's membrane.** *Klin. Monatsbl. f. Aug.*, xliv., 1, p. 27.

312. KOERBER, H. **Iris markings and iris vessels.** *Zeitsch. f. Aug.*, xv., 2.

313. HAMILTON, T. **A family with irideremia.** *Ophthalmoscope*, October, 1905.

314. DE VRIES, W. **Heterophthalmus or heterochromia.** *Ned. Tydsch. v. Geneesk.*, 1906, 1, p. 8.

315. AURAND, L., and BREUIL, P. **Contribution to the study of pathological hippus.** *Arch. d'opht.*, xxvi., 74.

316. WOODS. **Recurrent Iritis.** *Ophth. Rec.*, July, 1905.

317. Brown, E. V. L. **So-called leucosarcoma of the iris.** *Jour. Am. Med. Assn.*, Aug. 11, 1906.

318. Sherer, J. W. **Unusual effect of homatropin.** *Jour. Am. Med. Assn.*, May 19, 1906.

319. Suker, G. F. **Non-traumatic iridocyclitis plastica eventuating in sympathetic ophthalmia.** *Ophth. Rec.*, December, 1906.

320. Carver, W. B. **Cystic tumors of the iris.** *Journ. Minn. State Med. Assn.*, March 1906.

Peters (311, **Congenital defects of Descemet's membrane**) reports the clinical and histological examination of a case of so-called ulcus corneæ internum. The question whether inflammatory processes play any rôle in congenital fissure-formations is still undecided, but in this case at least, the developmental defect could be explained on a purely mechanical basis.

Koerber (312, **Iris markings and iris vessels**) gives a detailed description of two cases of malformation of the iris in which the vessels could be plainly seen. A similar observation can be made in albinotic irides or those lacking pigment as well as in papular and tuberculous iritis.

Hamilton (313, **A family with irideremia**) reports a father, aged thirty-six, two daughters, sixteen and thirteen years old, and a boy of five with this unusual anomaly. The eyes were defective in other respects. The author used amber glasses as he has done in other cases of retinal hyperæsthesia and dazzling with good results.

De Vries (314, **Heterophthalmus or heterochromia**) saw this condition in a young girl who had had a mild cyclitis, probably of tuberculous origin. One eye was a lighter brown than the other. He has compiled eleven instances of this anomaly. Excluding all cases of pigment change due to glaucoma, the condition may be due to cyclitis, or be congenital, although previous disease of the ciliary processes cannot always be excluded.

Aurand and Breuil (315, **Pathological hippus**) observed this condition associated with paralytic squint due to oculomotor palsy, in a child eight years of age. Hippus may be due to hyperæsthesia of the nerve-centres, and may be synchronous with respiration (Roch). Hippus in the stage of recovery of

oculomotor palsy is nystagmoid in character and analogous to that disturbance of the external muscles. Rhythmic hippus may be due to irritation of the "autonomous" peripheral nerve-centres of the iris (Brown-Sequard).

Woods (316, **Recurrent iritis**) found as an etiological factor of relapsing iritis, 9 cases, blennorrhœa in 3, syphilis in 1, dazzling in 2. Iridectomy may affect the nutrition of the iris favorably. Mydriatics, of course, help by putting the iris at rest. Correction of refraction errors and regulation of diet are important.

Brown (317, **So-called leucosarcoma of the iris**) discusses the theory of cell reversion propounded by Ribbert according to which normally pigmented chromatophores revert to the embryonic type of cell and then appear in tumor formation as the unpigmented round cell, the spindle cell, or the fully developed branching pigmented cell. He believes that the theory of Ribbert bearing on the origin of all uveal sarcomas is worthy of consideration but thinks it more reasonable that the cell reversion takes place directly to one of the forms of tumor cells. Although the cells of sarcoma of the uveal tract are strictly speaking derived from pigmented cells, the term leucosarcoma should be retained to describe the clinical appearances. Alling.

Sherer (318, **Unusual effect of homatropin**) in two instances found persistence of mydriasis and cycloplegia after homatropin had been used for aid in estimating refraction. In one case the effects lasted eight days, in the other fifteen. Alling.

Suker (319, **A case of non-traumatic iridocyclitis plastica which eventuated in sympathetic ophthalmia**) saw a typical case of iridocyclitis develop in a boy of sixteen, and six weeks later affect the other eye in the same manner. No known etiology could be assigned for the first attack. Vision of $\frac{20}{100}$ was recovered by iridectomy. Alling.

Carver (320, **Cystic tumors of the iris**) removed a cyst of the iris with an iridectomy. Cysts are produced by the transplantation of epithelial cells into the anterior chamber

either by traumatism or as a congenital defect. In this case there was a history of traumatism but no visible scar.

ALLING.

XV.—CHOROID.

321. LANDMAN, O. **Symmetrical congenital absence of choroid and retina outside of the macula.** *Arch. f. Aug.*, liv., 63.

325. GALEZOWSKI. **Gonococcic irido-choroiditis.** *Rec. d'opht.*, 1905, No. 6.

326. DREW. **The etiology of choroiditis.** *Jour. Am. Med. Assn.*, June 1905.

327. KOWALEWSKI, R. **Metastatic carcinoma of the choroid.** *Zeitsch. f. Aug.*, XV., 1.

328. PARRY, L. **Two cases of melanosarcoma of the choroid.** *Ophthalmology*, February, 1906.

329. KROENER, F. **Double circumpapillary and radial rupture of the choroid.** *Ned. Tydschr. v. Geneesk.*, 1906, 1, p. 9.

330. ALT, A. **On colloid excrescences and their influence on ossification of the choroid.** *Am. Journ. of Ophth.*, Sept., 1906.

LANDMAN (321, **Symmetrical defect of choroid and retina**) describes an arrest of development of these two membranes due to obliteration of the posterior ciliary vessels without involvement of the vascular supply for the macular region. There was functional disturbance of vision, and of color perception, and concentric contraction of the field of vision.

GALEZOWSKI (325, **Irido-choroiditis due to gonococci**) calls attention to the metastatic affections of the iris, choroid, and optic nerve in gonorrhœa, and ascribes their development to the virulence of the bacteria and low general resistance of the individual. Generalization of the infecting virus generally accompanies an increased production of toxins.

DREW (326, **Etiology of choroiditis**) reports a case of exudative choroiditis after measles in a little boy, with cure and V 2/3.

KOWALEWSKI (327, **Metastatic carcinoma of the choroid**) gives a detailed clinical and histological report of a case of choroidal carcinoma which developed after removal of a cancer of the breast. Unusually wide-spread necrosis of the tumor masses was a feature of the microscopical picture. This was probably of an ischæmic character and due to compression of the blood-vessels.

The cases reported by PARRY (328, **Melanosarcoma of the choroid**) belong to a well-known and common type and are quite like the great majority of such cases. The author's statement "When the retina has advanced at all points as far as the posterior surface of the lens, development in a backward direction begins," will not be confirmed by pathologists who so often find this condition in eyes lost by inflammation. It certainly does not hold good for a period of time which is of great importance from a diagnostic and prognostic point of view.

ALT (329, **On colloid excrescences and their influence on the ossification of the choroid**) has found bone formation in colloid excrescences and believes that it is not due to invasion of the finished colloid mass by cells which later become osteoblasts as has been suggested but that the bone forming cells are from remnants of pigment epithelium nuclei and nuclei of connective-tissue cells in which the colloid metamorphosis takes place. ALLING.

XVI.—VITREOUS.

330A. RUHWANDL. **Extensive remains of the embryonic eye-vessels.** *Zeitschr. f. Aug.*, XV., 3.

331. ALEXANDER. **Another case of arterial loop in the vitreous.** *Ibid.*

332. SCHOLTZ, K. **Case of intraocular echinococcus.** *Arch. f. Aug.*, liv., 2, p. 170.

333. SCHNEIDEMAN, T. **Spontaneous hemorrhage into the vitreous.** *Am. Jour. of Ophth.*, January, 1906.

334. KIPP, C. J. **The formation of connective tissue in the anterior part of the vitreous in young girls.** *Jour. Am. Med. Assn.*, January 16, 1906.

335. DE BECK, D. **Some cases of associated coloboma oculi and arteria hyaloidea persistens.** *Ann. of Ophth.*, July, 1906.

336. SHOEMAKER, W. **Persistent hyaloid artery in both eyes.** *Ibid.*, April, 1906.

RUHWANDL (330A, **Remains of fœtal eye-vessels**) reports a case in which there was secondary divergence of an amblyopic eye. V=F. at $\frac{1}{2}m$. with eccentric fixation. A persistent hyaloid artery was found with very clearly visible ramifications on the posterior capsule. Besides this there were two fœtal vessels branching off into the vitreous. At the temporal margin of the disk there was an area of choroidal atrophy

with a border of pigment proliferation. In the other eye there were merely fine deposits of pigment on the anterior lens capsule and normal vision.

SCHOLTZ (332, **Intraocular echinococcus**) observed a cyst-like mass in the vitreous which he diagnosed, intra vitam, as echinococcus. Enucleation was not performed, as the affected eye was the only one which still had light perception.

The first case of SCHNEIDEMAN'S (333, **Spontaneous hemorrhage into the vitreous**) was a woman of 47 who awoke in the morning with only light perception in one eye. Examination showed the vitreous nearly filled with blood. Only slight improvement in vision followed in three months, and the vitreous chamber did not clear. In the other case, which was that of a man of 21 who suddenly became blind, the vitreous was hazy but later as the opacities cleared two blood clots were seen in the vitreous. No cause was assigned in either case. ALLING.

A class of cases characterized by the formation of **Connective tissue in the anterior part of the vitreous** has been described by Hirschberg and others as occurring in young girls. KIPP (334) relates such a case and suggests the probability of antecedent hemorrhage. ALLING.

The six cases recorded by DE BECK (335, **Associated coloboma oculi and arteria hyaloidea persistens**) are a highly interesting and valuable addition to our list of similar anomalies. Nearly all give good evidence of being developmental rather than inflammatory in origin. Careful sketches are given illustrating each case. ALLING.

A peculiar form of **Persistent hyaloid artery** is described by SHOEMAKER (336). A large freely movable apparently tubular structure was found in the vitreous. Its anterior end was close to the lens, the posterior being in the vitreous unattached. Radiating upwards from the forward end and attached to the ciliary processes were three fine threads stretched tight like guy ropes. ALLING.

XVII.—SYMPATHETIC OPHTHALMIA.

337. ROURE. **Sympathetic irritation following subluxation of the lens.** *Ann. d'ocul.*, CXXXV., 135.

338. ROEMER, P. **Studies in sympathetic ophthalmia.** *Arch. f. Aug.*, liv., 3, p. 207.

ROEMER (338, **Studies in sympathetic ophthalmia**) shows that there is no connection between the ciliary nerve hypothesis and the theories of infection. The factor of predisposition, however, has still to be considered, although not to the extent that the conditions of nutrition in the second eye are influenced by a reflex. Further experimental investigations must determine the relation of bacteriology to the subject of sympathetic ophthalmia.

XVIII.—GLAUCOMA.

339. ROSENMEYER, L. **Cirsoid neuroma and hydrophthalmus** *Centralbl. f. prakt. Aug.*, xxx., p. 70.

340. VILLARD. **Acute glaucoma following contusion of the globe** *Ann. d'ocul.*, cxxxiv., 2.

341. STALBERG, K. **The question of traumatic glaucoma.** *Hygeia*, 1906, p. 136

342. GREEN, J. **Juvenile glaucoma simplex associated with myasthenia gastrica et intestinalis.** *St. Louis Courier of Med.*, January, 1906.

343. HEINE, L. **Treatment of glaucoma.** *Rep. 32d Meeting, German Oph. Soc.*, 1906.

344. HEINE, L. **Further experiences with cyclodialysis based on the results of 56 operations.** *Muench. med. Woch.*, 1906, p. 2.

345. HAVERKAMP. **The simplest operation for glaucoma.** *Oph. Klin.*, 1905.

346. WICHERKIEWICZ. **Iridectomy and massage of the eye in glaucoma.** *Ann. d' ocul.*, cxxxiv., 2.

347. LAGRANGE, F. **Treatment of chronic glaucoma by means of filtration scar. Description of a new method.** *18th Congr. French Ass. of Surg.*, October, 1905.

348. OPIN. **Acute glaucoma following iridectomy for increased tension.** *Arch. d'opht.*, 1906, No. 2.

349. MEDOW. **Resection of the sympathetic in glaucoma.** *In. Diss.*, Freiburg, 1905.

350. THILLIEZ. **Acute glaucoma in both eyes immediately after severe injury of the thigh.** *Journ. des Sc. med. de Lille*, 1905 December.

351. RAMSAY, A. M. **On sudden and unexpected conditions in ophthalmic practice.** *Lancet*, January, 1905.

352. HEPBURN, M. L. **Retina in glaucoma cup.** *R. Lond. Hosp, Rep.*, xvi., 4.

ROSENMEYER (339, **Cirsoid neuroma and hydrophthalmus**)

reports the development of hydrophthalmus in an eye which had been operated on five years before for cirsoid neuroma of the lid. The ciliary nerves showed the same convolutions as those of the skin, and the disease processes were related in spite of the intervening interval of time. The process caused a disturbance of lymph circulation and of exchange of intra-ocular fluids.

VILLARD (340, **Acute glaucoma after contusion**) reports 3 cases of traumatic glaucoma, a rare affection, the development of which is explained by nervous influences, increase of albumin in the aqueous humor, cyclitis, dislocation of the lens, and lymph stasis.

In STALBERG'S (341, **Traumatic glaucoma**) case, plus tension set in after contusion, and in spite of iridectomy, went on to complete blindness with continuous intense pain, necessitating eventual enucleation. Stalberg believes that emotional disturbances may be a contributing cause in such cases of increased tension.

GREEN (342, **Juvenile glaucoma with myasthenia**) reports the case of a young woman of thirty. There were increased tension, excavation of the nerve-head, contraction of the nasal field of vision. She was under treatment for a year, during which time she was cured of habitual constipation. The eyes also improved.

HEINE (343, **Treatment of glaucoma**) performed his new operation, cyclodialysis, in 26 cases of glaucoma. He goes in with a lance-knife, about 5*mm* back of the limbus until the ciliary muscle is reached. A stilet is then carried through the ligamentum pectinatum into the anterior chamber and this opening is enlarged by side to side motions. In this way the anterior chamber is connected with the suprachoroidal space. A small amount of aqueous is usually lost, but this is not of any moment. Tension is reduced. The technique is simple, and the procedure is indicated in case of peripheral adhesions, after unsuccessful iridectomy or sclerotomy. Special complications such as hemorrhage, irritation, loss of vitreous are unusual and can be avoided. Of the cases reported a cure was effected in 15 (2 after repeated operation),

there was permanent improvement in 2, partial improvement after repetition in 2, temporary success in 4, failure in 1.

HEINE (344, **Cyclodialysis**) reports a later series of 56 cases in which he performed his operation for glaucoma. Heine finds that his procedure is often preferable to iridectomy. For certain cases, of course, such as pupillary occlusion, the latter is the procedure of choice, as the first consideration is the establishment of free communication between anterior and posterior chamber in order to reduce tension. Cyclodialysis is our most effective means of combating glaucoma, and the method deserves further trial. The principal advantages of the operation are: less danger than in iridectomy, preservation of normal pupil and sphincter, cosmetic effect, applicability in difficult cases, as in hemorrhagic and secondary glaucoma, or in case of complete abolition of the anterior chamber, the possibility of repeating the operation without any difficulty or danger, and, finally, the maintenance of the anterior chamber.

HAVERKAMP (345, **Glaucoma operation**) has made use of the galvano-cautery in cases of plus tension with success for the purpose of opening the anterior chamber.

LAGRANGE (347, **Filtration scar in treatment of chronic glaucoma**) proceeds as follows: Section with Graefe's knife and conjunctival flap, iridectomy. A small sliver of the anterior scleral lip of the wound is then pared off with fine scissors and the conjunctival flap replaced. It is actually a sclerotomy following iridectomy.

OPIN (348, **Acute glaucoma after iridectomy**) calls attention to the fact that iridectomy may be useless or even deleterious in certain cases of glaucoma, such as the chronic simple variety. It is advisable to test the field of vision and take into consideration every feature of the clinical course before proceeding to operation.

MEDOW (349, **Resection of sympathetic in glaucoma**) concludes on the basis of his study of the cases that iridectomy is the operation par excellence, and that sympathectomy is to be considered only in case iridectomy and sclerotomy are out of place.

THILLIEZ (350, **Acute glaucoma after injury to the thigh**) reports a case in which sudden increase of intraocular tension came on two hours after the accident described in the title. Double iridectomy was performed. Thilliez believes that the injury was directly responsible for the acute glaucoma although unable to explain its mode of action.

RAMSAY (351, **Sudden and unexpected ocular conditions**) gives a clinical lecture on treatment of some of the more important oculistic emergencies. In case of glaucoma the general practitioner is advised to perform scleral puncture if he cannot get the services of a specialist promptly. This procedure is practically free from danger and may afford relief until the more difficult operation can be performed by a skilled hand.

HEPBURN (352, **Retina in glaucoma cup**) has examined a number of cases in which fibrous tissue is found in the cup at the nerve head, mostly secondary glaucoma, following iridocyclitis. The longer the duration of the inflammation, the greater changes do we find, and it is not uncommon for fibrous tissue to be developed in close proximity to the retinal blood-vessels. Sooner or later tension comes on, and the nerve head becomes pushed back. The fibrous tissue already present may be attached to the retina and so pull it back with it. In the majority of cases the retina does not hold and we may get just a strand left connecting the two, or it may separate altogether. Some excellent photographs accompany the paper.

Sections XIX.–XXII. Reviewed by DR. H. MEYER, Brandenburg.

XIX.—RETINA AND FUNCTIONAL DISTURBANCES.

353. LOBEL, A. **Atrophy of optic nerve, and macular hemorrhages during lactation.** *Rec d'opht.*, xxviii., p 20.

354. VALUDE. **Double congenital macular chorio-retinitis.** *Soc. d'opht. de Paris*, February, 1906.

355. REIS, W. **Etiology and pathogenesis of "hole in the macula," (retinitis atrophicans centralis, Kuhnt).** *Zeitschr. f. Aug.*, xv., 37.

356. COATS, G. **Thrombosis of the central retinal vein.** *R. Lond. Ophth. Hosp. Rep.*, xvi., 1.

357. COATS, G. **Obstruction of the central retinal artery.** *Ibid.*, p. 3.

358. Birch-Hirschfeld, A. **Influence of light adaptation on structure of nerve-cells of the retina in doves.** *v. Graefe's Arch. f. Ophth.* lxviii., p. 85.

359 Garten, S. **Light changes in the visual purple.** *Ibid.*, p. 112.

360. Ogawa, K. **Case of incipient glioma.** *Arch. f. Aug.*, liv., 2, p. 248.

361. Owen, S. **Glioma of the retina.** *R. Lond. Ophth. Hosp. Rep.*, xvi., 3.

362. Coats, G. **Further cases of thrombosis of the central vein.** *Ibid.*, part 4.

363. Nettleship. **Opacity of retina in yellow spot region of both eyes. Opaque nerve fibres. High myopia, probably congenital, etc.** *Ibid.*

364. Sisson, E. **Glioma of the retina.** *Ophth. Rec.*, April, 1906.

365. Gifford, H. **Unusual case of methyl-alcohol poisoning with a note on formaldehyde amblyopia.** *Ophth. Rec.*, June, 1906.

366. Gradle, H. **The punctate forms of retinitis.** *Ibid.*, October.

367. Ball, J. **A case of subhyaloid hemorrhage with remarks on the source and anatomic situation of this variety of hemorrhage.** *Ann. of Ophth.*, January, 1906.

368. Fischer, W. **Coloboma of the macula lutea.** *Ibid.*, January, 1906.

369. Wuerdemann, H. **Treatment of recent cases of embolism of the retinal artery by digital massage.** *Am. Jour. Ophth.*, January, 1906.

370. Culbertson, L. **Report of a case of quinine amaurosis.** *Ibid.*, June, 1906.

371. Brown, S. **Report of a case of homatropin poisoning.** *Ann. of Ophth.*, April, 1906.

372. Hancock, W. **Ring scotoma.** *R. Lond. Hosp. Reps.*, xvi., Part 4.

373. Frank, M. A. **A case of amaurotic family idiocy with an appendix of reported cases.** *Annals of Ophth.*, January, 1906.

Lobel (353, **Atrophy of optic nerve and macular hemorrhages during lactation**) reports a case of this character from de Lapersonne's clinic in which both phenomena appeared while there was no secretion of milk, 10 months after the birth of the second child. Two days later menstruation was re-established. Another interesting feature was the development of psychical symptoms, loss of memory, alteration of character, and so on.

Reis (355, **Hole in the macula**) having seen 5 cases of this unusual condition, believes that the histological changes are due to traumatic retinitis with œdema in the macula and consequent pressure and imbibition of the nervous elements and final degeneration and atrophy.

COATS (356, **Thrombosis of central retinal vein**) made a histological study of four cases. Nineteen previously published cases are tabulated. The clinical picture may be caused by thrombosis of the central vein, multiple thrombi in the smaller retinal veins, obliteration by endophlebitis, multiple emboli or thrombi of the retinal arteries, endarteritis, or, finally, by hemorrhages into the trunk of the nerve. It is difficult to determine the causal connection between the histological changes and the clinical picture, as the former were often present a long time before the development of ocular symptoms and secondary changes formed. Glaucoma complicates the findings. Serial sections, especially through the nerve entrance and lamina, are important. In the 4 cases examined an obturating thrombus was found with certainty in 3, and, possibly, in the fourth. Angiosclerosis is the most important etiological factor. Valvular disease of the heart is noted frequently. The development of glaucoma is a direct consequence of the retinal condition. Disturbance of the lymph circulation might explain its development but not its persistence.

COATS (357, **Obstruction of the central retinal artery**) has collected histological reports of 24 cases. The obstruction is more often due to endarteritis and thrombosis than to emboli. In one case, with mitral and aortic valvular lesions, there was a marked excavation of the nerve-head, hyaline degeneration of the capillaries, sclerosis, and obliteration of many of the larger vessels, one of them being filled with a chalky mass. The retina was markedly atrophic. Glaucoma in this case had been caused by adhesion of lens capsule to the section. Immediately after obstruction, the arteries became very narrow, enlarging slightly, when collateral circulation has been established. Connective-tissue proliferation with thickening of the walls then takes place. In a second case there was obstruction of the superior temporal branch, only. A month later, glaucoma developed, with intense pain and absolute amaurosis, necessitating enucleation. Hyaline degeneration of the capillaries. The main branch of the central artery was almost completely filled with proliferating endothelial cells. Further back there was a chalky node. The nerve was atrophic and the retina œdematous. The marked

obstruction in the main branch had evidently been sufficient to cut off the entire blood-supply from the upper temporal branch, simulating local thrombosis.

Birch-Hirschfeld (358, **Action of light on retinal nerve-cells of the dove**) found diminution of chromatin and contraction of the cones after adaptation to sunlight or to the electric arc deprived of ultra-violet- and heat-rays. Light of lower intensity (Welsbach, Nernst) causes very slight changes.

Garten (359, **Changes of visual purple due to light**) tries to show, as against Nagel and others, that visual yellow is invariably produced in the light decomposition of the photochemical substance of the retina.

Ogawa (360, **Incipient glioma**) saw a condition of this sort in a child of two years. The neoplasma had originated in the inner nuclear layer with a thickening and formation of rosettes. This layer and the neighboring plexiform layer are the only retinal tissues from which glioma can develop. The rapid and copious vascularization of incipient glioma speaks strongly against the possibility of origin from the external nuclear layer, as the latter is devoid of vessels. The rosettes do not start from and are not derivatives of the rods and cones, as Wintersteiner claims, but are plainly seen to be glia cells which have arranged themselves around necrotic masses or the lumen of a vessel, and undergone epitheloid metamorphosis.

Owens (361, **Glioma retinæ**) reports further findings in cases from Moorfields, published by Lawford and Marshall. The work is mainly statistical. A rare occurrence of glioma in several generations is noted. Father and son were both affected, each in early infancy, a sister and two children had also this condition of which both children died 6 months later.

In a former paper Coats (362, **Further cases of thrombosis of the central vein**) showed that 6 different lesions had been described as the essential basis of this class of case. Eleven cases form the base of this paper, in which he endeavors to trace the real cause.

In every case an obstruction was found in the vein, which fully accounted for the symptoms, and there can be hardly a

doubt but that in a typical case, obstruction would be found in some part of the central vein. This clears away 2 of the 6 explanations, viz.: (1) multiple emboli or thrombi of the retinal arteries and (2) changes in the retinal vessels not the result of thrombosis or embolism. Hemorrhage into the substance of the optic nerve has never been proved. Multiple thrombi of the retinal, without thrombosis of the central vein may be possible, but has never been shown in a case in which the nerve has been thoroughly examined. In the vast majority of cases the lesion is really a thrombus, in a more or less advanced condition of organization. From the after history of these cases, the most important fact is the total immunity of the other eye. Glaucoma is seen in so large a number of affected eyes that there must be some connection between the two, but its explanation is not easy. After the condition is once diagnosed, a mydriatic should never be used. The prognosis seems to depend much more on the general health than on anything else, and cases have been watched for years without the least deterioration of the health. In only two of the cases did thrombosis occur elsewhere, viz.: in the brain.

NETTLESHIP (363, **Congenital opacity in yellow-spot region of both retinæ. Opaque nerve fibres. High myopia also probably congenital. Case under notice 15 years**) reports a curious case in a girl five years old when first seen. In each eye was an oval area in the retina extending from the temporal side of the disk, up to, and somewhat beyond, the yellow-spot region. It was opaque and white. The upper and lower borders were well defined and so dense as to hide the choroid; the central part was thinner. Both eyes were myopic about 20 D. When the patient was about seventeen years of age, some vacuoles and opacities were seen in the lens. Her vision became reduced to $\frac{4}{6}$ and J. 1 at 3 inches.

The condition somewhat resembled opaque nerve fibres, but the process may have started in the choroid in fœtal life, and have caused not only the protrusion indicated by the myopia, but also secondary changes in the retina. The family history did not throw any particular light on the case. A very pretty colored ophthalmoscopic drawing of the condition of the fundus is given.

SISSON (364, **Glioma of the retina**) reports the case of a child three years old; the tumor having been noticed two and a half years before. The eye was in the glaucomatous stage and seemed ready to rupture. One year after enucleation there had been no return. The author was able to get histories of only nine cases of glioma occurring in the practices of ophthalmologists of the State of Iowa. ALLING.

GIFFORD'S (365, **An unusual case of methyl-alcohol poisoning**) patient became absolutely blind while confined in a small room which he was finishing with shellac dissolved in methyl-alcohol. He was not nauseated or sick in any way. He remained in this condition for about a week when his sight gradually returned to some degree. Later he became worse until after six months he was again blind. Then again a change for the better occurred and he can now find his way about. Another feature was the loss of knee-jerk immediately after the initial attack. Gifford also adds the case of a patient who was in the habit of burning wood alcohol every evening for the purpose of heating a room. There developed signs of mild toxic amblyopia, but improvement took place when the poison was discontinued. It seemed likely that the formaldehyde which was generated by the burning of the methyl-aclohol was the active agent here and some other reported cases may have been of similar origin. ALLING.

GRADLE (366, **The punctate forms of retinitis**) distinguishes two varieties of this disease. The first occurs principally in young people and shows no scotomata and but slight defect in vision. Faint white dots are found mostly about the disk but sometimes surrounding the macula. They disappear and leave no trace. It is not specific in origin. The other group is characterized by more marked lesions. There is an acute onset with dimness of vision and central scotoma. The dots are not always present at the start and are evidently not the essential lesion. They are easily visible and occupy the central area of the fundus. The true lesion the author believes to be a retrobulbar neuritis. ALLING.

BALL'S (367, **Subhyaloid hemorrhage**) case showed below the macular region a large hemorrhage the upper border of which was a straight horizontal line. There was a grayish

white line below surrounding the blood clot and above a whitish area. The blood was undergiong absorption. The whole lesion was practically circular and involved the macular region. ALLING.

FISCHER (368, **Coloboma maculæ luteæ**) adds a case of characteristic coloboma of the macula in right eye. There was also a defect in the fundus of the other eye about two papilla diameters in size and three and a half diameters downward and temporally. ALLING.

WÜRDEMANN (369, **Treatment of recent cases of embolism**) is very sanguine of good results from energetic massage in cases giving histories of so-called embolism of the central artery. He presents records of four cases which he is pleased to call embolism which more or less satisfactorily support his contention. ALLING.

CULBERTSON (370, **Quinine blindness**) adds a case in which sixty grains of quinine were taken in twenty-four hours followed by total blindness and nearly total deafness. After two weeks he found the vision somewhat improved. Right pupil dilated and fixed. Retina grayish in color, arteries and veins diminished in size. Disk pale. Color-blindness and contraction of the field. ALLING.

HANCOCK (372, **Ring scotoma**) describes 3 cases. The first was that of a lady aged twenty-six who was first seen in November, 1904. Rather more than two years before she was struck by a flash of lightning which rendered her unconscious, but did not burn her face. When she recovered, in about an hour, she was quite blind. Next day both eyes were much inflamed, the sight of the right had quite returned, but the left was still blind. In about 10 days the sight of both eyes was as good as ever. Two years later things seen with the left eye had a dark outline, and although the vision in each eye was normal, yet with the left there was a large ring scotoma extending completely round the disk and macula.

Case 2 was a man aged forty-six whose right eye had been failing for 6 weeks. Vision was only hand-movement. There was a large central scotoma with a normal peripheral field. He was treated with blisters and iodide and the sight rapidly

improved to $\frac{6}{9}$. The disk was very pale specially on the temporal half. A ring scotoma was present.

Case 3 was a man aged twenty-eight with night-blindness, first noticed eight years before. For the last two years it had become much worse. Others of the family were affected. He had a ring scotoma in both eyes, and the fundi showed retinitis pigmentosa sine pigmento.

XX.—OPTIC NERVE.

374. GOLOWIN, S. **Tumors of the optic nerve and their operative management.** *Westn. Ophth.*, No. 2, 1906.

375. PERCIVAL, J. **Inflammation of the ciliary ganglion in connection with retrobulbar neuritis.** *Ophthalmoscope*, November, 1905.

376. DE VAUCRESSON. **Infectious monolateral optic neuritis after measles.** *Ann. d'ocul.*, CXXXV., 202.

377. BICHELONNE. **Optic neuritis due to refrigeration.** *Ibid.*, 129

378. COATS, G. **Case of tubercle at the nerve head.** *R. Lond. Oph. Hosp. Repts.*, XVI., 3.

379. CHAILLOUS, J. **Blindness without ophthalmoscopic changes but with preservation of the pupillary reflexes.** *Soc. d'opht. de Paris*, 5 Dec., 1905.

380. EVANS, J. **Indirect injury of the optic nerve.** *Brit. Med. Jour.*, July 8, 1905.

381. OGAWA, K. **The normal pigmentation of the nerve among the Japanese.** *Arch. f. Aug.* IV., 2, 107.

382. HUBBELL, A. **Uniocular inflammations of the optic nerve and retina.** *Jour. Am. Med. Assn.*, July 7, 1906.

383. BAKER, A. **Choked disk and brain tumor.** *Ophth. Rec.*, 1906.

384. BULL, C. S. **Treatment of progressive atrophy of the optic nerve due to acquired syphilis by subconjunctival and intravaginal injections of bichloride of mercury.** *Jour. Am. Med. Assn.*, September 15, 1906.

GOLOWIN (374, **Tumors of the optic nerve**) discusses the operative treatment of retrobulbar growths. Knapp's transconjunctival and Kroenlein's osteoplastic resection are considered in detail. The latter is the more appropriate, and gives better results in regard to preservation of the globe, position and motility, and amount and frequency of post-operative ptosis. Golowin advises a horizontal Y-shaped incision, beginning $1\frac{1}{2}cm$ back of the external canthus and diverging at the orbital margin. A V may be made at the temporal end of the horizontal cut, if necessary. This gives

free access to the orbit and better cosmetic results. The tarso-orbital fascia is then divided along the orbital margin without detaching the periosteum. Direct inspection, and palpation with finger, probe, or incision must then determine whether the tumor can be removed: (1) directly, (2) with exenteration of the orbit, or (3) after resection of the outer wall. In the last case the periosteum is cut through on both surfaces of the temporal wall of the orbit in the line recommended by Kroenlein for the bone section. The bone is then resected with a narrow chisel. The external rectus may be taken up in a ligature and cut loose temporarily. Extradural tumors should be extirpated back to the optic foramen. Benign subdural growths may be removed by curettage after splitting the sheath.

PERCIVAL'S (375, **Ciliary ganglionitis with retrobulbar neuritis**) patient was a man of thirty-eight years who had diminution of vision and constant pain behind the right eye for 6 weeks. V. = $\frac{6}{60}$. The pupil was dilated and immobile, the cornea anæsthetic, and the field of vision reduced to a small area at the temporal side. The fundus and nerve head were normal. The other eye was sound. The symptoms disappeared completely in a week under iodides, and V = $\frac{6}{5}$ becoming normal two weeks later. By exclusion the diagnosis of an inflammation of the ciliary ganglion is made.

BICHELONNE (377, **Optic neuritis "a frigore"**) saw a soldier, aged twenty-four, who had slept out in the cold, on the damp ground, after exhausting work in manœuvres. There was right optic neuritis with central scotoma. In spite of inunctions and iodides, atrophy developed with almost complete blindness in the course of two months. Refrigeration is held to be the cause, and all similar cases in the literature are noted.

The case reported by COATS (378, **Tubercle at the nerve head**) was that of a child aged sixteen months, which died of general tuberculosis. Post-mortem examination showed a large, granuloma-like mass springing from the intraocular end of the nerve. This proved to be tubercle. Details of similar cases and the entire literature are given with drawings of the gross and microscopical appearance.

CHAILLOUS (379, **Blindness without ophthalmoscopic changes**)

saw a boy of sixteen in Babinski's clinic, who had had epileptic seizures since the age of three. He became suddenly blind during an attack of fever with delirium and nausea. There was complete bilateral amaurosis with good reaction of the pupils to light. It may have been cortical blindness due to central changes on a basis of heredito-specific disease.

Evans (380, **Indirect injuries of the nerve**) reports 5 cases of trauma of the external angular process followed by sudden defect of vision in the corresponding eye. The temporal half of the visual field was lost, and a few weeks later optic atrophy became manifest. Evans concludes that there was contusion of the nasal fibres by contrecoup. The opposite side of the nerve is protected by the ophthalmic artery winding around it. Rest in bed is important, as in the case of concussion of the brain.

Ogawa (381, **Pigmentation of the nerve among the Japanese**) examined 13 optic nerves, and found pigment in the lamina and sclerotic in much more marked degree than it is found in Europeans. This agrees with the findings by Mueller and Berger of pigment cells in the optic nerve.

Hubbell (382, **Uniocular inflammations of the optic nerve and retina**) divides an interesting set of cases into three classes: first, those of uniocular optic neuritis; second, those of uniocular neuro-retinitis; and third, those of uniocular retinitis. There are eighteen cases in all. In the first class there were four. Recovery followed in all with perfect or nearly perfect vision. In the second class one patient was in good general health, one had inflammation of the kidney, one general arteriosclerosis with albuminuria. Of the remaining cases which were in the last category three were mild and terminated favorably, in one the eye was lost, while in the remaining six the results were either unknown or the disease is still in progress. Arteriosclerosis and albuminuria were most commonly found. Alling.

Bull (384, **Treatment of optic-nerve atrophy by subconjunctival injections**) points out the plausibility of deep injections to affect the optic nerve. He tested the method in twenty-five cases of progressive atrophy of specific origin in which there was no evidence of a preceding optic neuritis.

The conjunctiva was incised and the injection made far back toward the apex of the orbit. In none of the cases was there permanent improvement in vision, and in only three was there temporary improvement. He therefore concludes that the treatment offers no better results than can be obtained from the usual routine with strychnine, potassium iodide, etc.

ALLING.

XXI.—INJURIES, FOREIGN BODIES, PARASITES.

385. MURRAY, W. **Two splinters of steel removed from the interior of the eye with the magnet.** *Ophth. Rec.*, January, 1906.

386. BEAUVOIS, E. **Intraocular foreign body. Extraction with electro-magnet. Full vision.** *Rec. d'opht.*, xxvii., 713.

387. CHAILLOUS, Z. **Ocular disturbance after fall on the head. Lumbar puncture. Cure.** *Soc. d' opht. de Paris*, December 5, 1905.

388. WEILL, G. **Contusion of globe followed by detachment.** *Zeitschr. f. Augenh.*, xv., 140.

389. GAD, A. **Avulsion of the globe intra partum.** *Hosp. tid.*, 1906, 221.

390. ENSLIN, E. **Parenchymatous keratitis and traumatism.** *Zeitschr. f. Aug.*, xv., 227.

391. DE HAAS, H. **An accident due to short circuit.** *Ned. Tydschr.*, 1906, i., 8.

392. DREYFUS, G. **On traumatic pupillary paralysis.** *Muenchen Mediz.*, 1906, 355.

393. ROCHAT. **A rare parasite of the human eye.** *Ned. Tydschr.*, 1906, i., 8.

394. MARPLE, W. B. **Injuries to the eye with bird shot.** *Jour. Am. Med. Assn.*, Aug. 11, 1906.

395. VAIL, D. T. **Filaria loa.** *Am. Jour. of Ophth.*, December, 1905.

MURRAY (385, **Steel splinters removed from the eye**) reports the unusual occurrence of a simultaneous penetration of the globe by two metallic foreign bodies, both of which were extracted with the magnet.

CHAILLOUS (387, **Ocular disturbance after fall on the head**) reports a case of double-choked disk and left retinal hemorrhages with symptoms of cerebral compression following cranial injury. After lumbar puncture the headache disappeared and the ophthalmoscopic changes cleared up.

WEILL (388, **Detachment following contusion**) reports two cases in which detachment did not take place until 14

days after the injury. There was no myopia, and no tears could be seen in the retina.

GAD (389, **Avulsion of the globe**) reports a case in which one eye was extruded and the nerve and muscles torn off in a correctly performed forceps delivery. The birth pains or the pressure of the forceps had caused retrobulbar hemorrhage and protrusion of the globe. The latter had been pressed out by the contraction of the birth passages, through the upper lid and out above the lower margin of the orbit.

ENSLIN (390, **Parenchymatous keratitis and traumatism**) saw this affection develop in a boy of eighteen years, 5 days after a lime burn. There was no evidence of constitutional disease, but Enslin thinks the injury acted simply as the exciting cause of a local manifestation. Such cases are of great importance in accident insurance.

DE HAAS (391, **Injury by short circuit**) saw a machinist who had been injured by an electric flash. Face and lids showed marks of burns, and vision was completely abolished. After a few days, fingers could be counted with the right eye, and after a week there was light-perception in the left. More than a month later there was still suffusion of both conjunctivæ, cloudy corneæ, pallor of both disks, and contraction of the visual field. V, O.D. $= \frac{5}{10}$; V, O.S. $= \frac{5}{30}$. Prognosis doubtful.

DREYFUS (392, **Traumatic pupillary paralysis**) saw a patient who had fractured the fourth cervical vertebra in an automobile accident. Post-mortem examination revealed an injury of the medulla in the region of the 3d cervical segment. During life there was reflex pupillary rigidity with meiosis.

ROCHAT'S (393, **Rare parasite of the eye**) patient complained of epiphora and itching of the eye. He said he saw a "nerve" moving about in his eye. Between the sclera and the upper fornix fold of the conjunctiva Rochat found a somewhat twisted thread looking like an episcleral vessel and moving about. A small colorless translucent worm was extracted with iris forceps. It was round and hard, looked like a violin string, and on microscopic examination proved to be Filaria loa, a worm-like parasite which is found on the Congo

and on the Gold Coast, where the patient had lived for a time. The blood and urine were normal.

MARPLE (**Injuries to the eye with bird shot**) had under his care two cases in which there was double perforation from bird shot. He points out the importance of diagnosis of double perforation and the great value of the X-ray. As regards prognosis, the results will depend upon the structures involved but he agrees with the well-known observation that infection is relatively uncommon in these injuries and believes that the shot should as a rule be undisturbed with the hope of encapsulation. ALLING.

VAIL (395, **Filaria loa**) extracted a specimen of filaria loa from under the skin of the eyelid. It is the second case according to the author in which this has been done in the United States. Western Africa is the only section of the world where the filaria oculi humani is found. The patient was the wife of a medical missionary. Her husband had at different times succeeded in extracting a number of the worms from under the skin in various parts of the body. ALLING.

XXII.—OCULAR DISTURBANCES IN GENERAL DISEASE.

396. ZENTMAYER, W. **Case of retrobulbar neuritis probably due to sinusitis.** *N. Y. Med. Journ.*, January 27, 1906.

397. HEERFORDT. **Acute diffuse, occasionally universal, metastatic ophthalmia following infectious disease.** *Hosp. tid.*, 1906, 245.

398. NETTLESHIP, E. **Renal retinitis in youthful individuals, and the relative frequency of interstitial nephritis in both sexes.** *R. Lond. Ophth. Hosp. Reps.*, vol. xvi., Part 1.

399. NETTLESHIP, E. **The prognostic and diagnostic significance of retinitis in diabetes.** *Ibid.*

400. STEVENS, E. **Observations on retinal hemorrhages in apparently healthy eyes.** *Ophthalmology*, January, 1906.

401. DIDAKAS. **Sudden loss of vision by intraocular hemorrhage. Treatment.** *Ann. d'ocul.*, CXXXV., 210.

402. ROCHON, D. **Syphilitic lesions of the fundus oculi.** *Soc. d'opht. de Paris*, February 6, 1906.

403. PALOQUE, A. **The diabetic eye.** *Thèse Lyon*, 1905.

404. WINGENROTH, E. **Abducens paresis following menstrual disturbance.** *Arch. f. Aug.*, xl., liv., 68.

405. WAGNER. **Recurrent orbital hemorrhages due to faulty coagulability of the blood.** *Centralbl. f. Aug.*, xxx., 42.

406. GRUEGER, A. **Hemianopsia with disturbances of orientation.** *In.-Diss. Breslau.*, 1906.

407. FÉJER, J. **Neuropathic conditions of the eye.** *Arch. f. Aug.*, liv., p. 188.

408. FRANK, M. **Amaurotic family idiocy with a summary of reported cases.** *Jour. Am. Med. Assn.*, January, 20, 1906.

409. HOLDEN, WARD. A. **The early ocular signs of dementia paralytica.** *J. Nerv. and Ment. Dis.*, November, 1905.

410. POULARD and BOIDIN. **Blindness and hemianopsia in a case of cerebral syphilis.** *Ann. d'ocul.*, CXXXV., p. 215.

411. WEISSENBERG, T., and THORINGTON J. **A case of syringomyelia with double optic neuritis.** *Am. Jour. Med. Sci.*, December, 1905.

412. WÜRDEMANN, H. V., and BECKER, W. **Atypical exophthalmic goitre.** *Ophthalmology*, April, 1906.

413 HOLMES, C. R. **Head pains and eye symptoms caused by inflammations of the accessory sinuses.** *Ohio State Med. Jour.*, February 15, 1906.

414. SHUTE, D. K. **A new ophthalmotrope.** *Wash. Med. Annals*, March, 1906.

415. MOULTON, H. **The effect of prolonged lactation on the eye.** *Oph. Rec.*, March, 1906.

416. KIPP, C. J. **Metastatic panophthalmitis.** *Jour. Med. Soc.*, N. J., Oct. 1906.

417. MAYOU, M. **Metastatic infection of the eye associated with (*a*) cerebro-spinal meningitis, (*b*) typhoid fever.** *R. L. Ophth. Hosp. Reps.*, vol. xvi., Part 4.

ZENTMAYER (396, **Retrobulbar neuritis in sinusitis**) saw a case of blindness following atrophy from retrobulbar neuritis. The frontal and ethmoidal cells were full of pus, and were the probable cause of the affection. ALLING.

NETTLESHIP (398, **Renal retinitis in youth**) reports 80 cases of interstitial nephritis in patients under twenty-one. Of 62, the cause of death was known, and autopsy had been performed in 60. There were almost twice as many females as males affected with interstitial nephritis, but many more males with parenchymatous kidney disease. In adult life there is a preponderance of both varieties in the male. Congenital syphilis was found as a cause of interstitial nephritis in only 6 cases, 3 in children, and in 4 cases of parenchymatous nephritis. In at least 31 of 45 cases specific febrile diseases, including syphilis, are responsible for interstitial nephritis, and for a large number of cases of parenchymatous nephritis.

NETTLESHIP (399, **Diabetic retinitis**) finds that retinal changes in glycosuria do not indicate the probability of

early death, at least not anything near as frequently as in Bright's disease. In 48 cases of death with retinitis or retinal hemorrhages due to diabetes, between the ages of 41 and 79 years, 60% had lived more than 2 years after the appearance of changes in the fundus, and only $\frac{1}{8}$% died within a year. More than half died in diabetic coma. An accompanying nephritis is of slight importance and the fundus changes are not in any way related to it.

STEVENS (400, **Retinal hemorrhages in healthy eyes**) observed this occurrence in 8 cases, 4 times into the vitreous, 3 in the retina, and 1 subhyaloid. The causes were, arteriosclerosis, high blood-pressure, pertussis, or unknown factors.

WINGENROTH'S (404, **Abducens paresis**) patient was a young woman who had an unusually scanty menstruation after overexertion. The muscular disturbance disappeared at the next normal period, and may have been due to small cerebral hemorrhage, to hyperæmia from suppression of the menses, or to auto-intoxication from the same source.

In removing a dermoid cyst from the lower lid of a boy, aged five years, WAGNER (405, **Recurrent orbital hemorrhage**) met with recurrent bleeding due probably to deficient coagulability of the blood, and which was finally controlled by injections of gelatine emulsion.

GRUEGER (406, **Hemianopsia with disturbance of orientation**) saw a patient with right hemianopsia following an apoplectiform attack. After several seizures blindness developed with atypical symptoms of loss of memory and disordered orientation. This cleared up, leaving a markedly contracted field and orientation defect. Post-mortem examination was not made.

FÉJER (407, **Neuropathic conditions of the eye**) discusses blepharospasm in connection with accommodation spasm and with photophobia with a note on the neuroses of the conjunctiva.

HOLDEN (409, **Ocular signs of dementia paralytica**) was able to examine 70 uncomplicated cases at a comparatively early stage. Optic atrophy was not seen in a single case. It is rare, except in connection with tabes or nicotine poisoning.

The pupils were irregular in 70%, the condition being bilateral in 45%, unusually high figures. The sensory reflex—dilatation on irritation of the skin—was absent in 85%. Direct reaction to light was sluggish in 21%, absent in 20%. Convergence reaction was sluggish in 9%. One or both pupils were contracted in 55%.

WEISSENBERG and THORINGTON (411, **Syringomyelia with double optic neuritis**) have found only 2 similar cases in literature. In their case there was papillitis with congestion of the disk and beginning atrophy, paralysis of the external recti, and weakness of associated motions. The ocular symptoms were probably due to internal hydrocephalus.

WÜRDEMANN and BECKER (412, **Atypical exophthalmic goitre**) report a case of death from secondary systemic streptococcic infection starting in a panophthalmitis. The involvment of the eye began with an ulcer of the cornea due to lagophthalmos. At the autopsy the thyroid gland was found enlarged and contained an endothelial tumor. Although the pulse was not rapid (70–80) a diagnosis of exophthalmic goitre seemed justifiable. ALLING.

MOULTON (415) cites a case of severe anæmia and exhaustion probably due to prolonged lactation. **There was acute bilateral retrobulbar neuritis** of typical form. Later the eyes recovered entirely. ALLING.

KIPP'S (416, **Metastatic panophthalmitis**) first case followed appendicitis complicated with phlegmasia alba dolens. The right eye became involved fifty days after the appendectomy and the left one day later. Death occurred eleven days after the onset of the ophthalmia. The second case was in a boy of fifteen whose left foot had been badly crushed and later became infected. Signs of inflammation in both eyes appeared after ten days and death four days later. Streptococcus pyogenes was found to be the cause of the purulent process. ALLING.

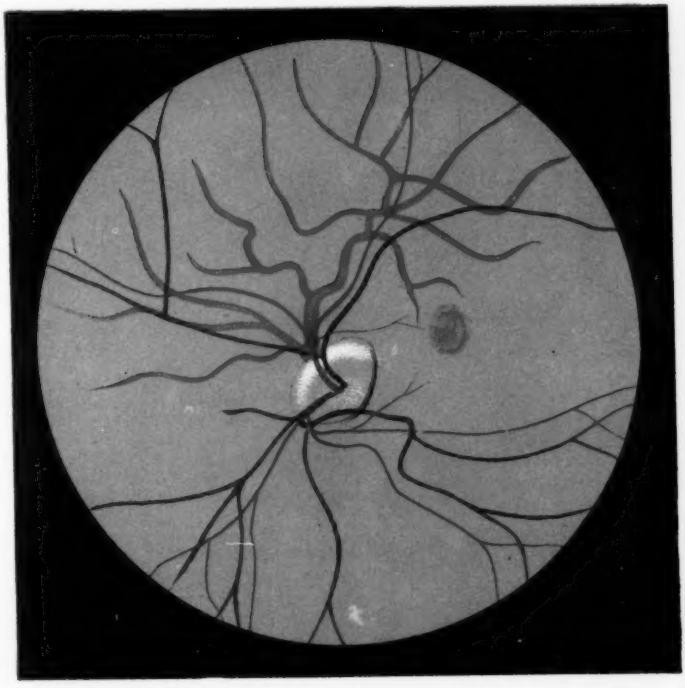
MAYOU (417, **Metastatic infection**) records two most interesting cases in which the eyes became infected from a distant part of the body. Case 1 was a boy aged three years who died in 2 days. On the day he died he had developed a large

hypopyon. The autopsy showed cerebro-spinal meningitis in which the diplococcus meningitidis was present. The pus in the anterior chamber contained the same organism, and the vitreous was just becoming affected. The original place of infection was the ciliary body. The second case was that of a man who was suffering from typhoid fever; he had previously suffered from iritis. Thirteen days before the eye was excised, paracentesis was done to relieve tension, but no infection took place. The anterior chamber was filled with tough exudation, but contained very few pus cells. The vitreous was filled with reddish-brown pus. Smear preparations showed the bacillus typhosus, but owing to the eye having been hardened in formol no cultivation could be obtained. This patient also had other metastatic typhoid deposits, e, g., pleurisy, so that there is practically no doubt as to the nature of the eye lesion, both in this case and in the previous one.

Fig. I.

R. A.

Umgekehrtes Bild.



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